FAA Safety BRIEFING

September/October 2012

Your source for general aviation news and information

Aviation Educators' Guide

Federal Aviation Administration

www.faa.gov/news/safety_briefing

The Sep/Oct 2012 issue of FAA Safety Briefing *explores the critical role of the aviation educator. Articles focus on flight instructor requirements and best practices as well as the many tools and educational resources that can help sharpen your teaching skills.*

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JOHN ALLEN
DIRECTOR, FLIGHT STANDARDS SERVICE

My Father, My Teacher

You don't have to be a certificated flight instructor to be an influential aviation educator. That was one of the many lessons I learned from my father, John R. Allen, Jr., who recently passed away after a valiant battle with cancer. Because this issue of *FAA Safety Briefing* magazine is devoted to the aviation educator's role and responsibilities, it seemed fitting to share some of the aviation and life lessons that my dad taught through words, deeds, and example.

You Have to Believe

My father's 1940 high school yearbook includes these words: "Wants to be: Aviator." "Likely to be: Private in Army." As it happened, he was both. My dad enlisted in the Army in 1940, but it was the Army Air Corps. For the next two decades, he flew throughout the Pacific as a flight engineer on C-97s and C-124s. And, though he started as a humble private, my dad retired as a Chief Master Sergeant. Better yet, he was a "charter chief," which means that he was in the very first group of sergeants to earn that newly established rank.

Lesson: Believe in yourself. Believe in your dreams. Then go make them come true.

The Power to Inspire

My dad was always humble about his accomplishments. Still, he regaled anyone who appeared even half interested with his many flying stories. He probably did not realize that he also commanded the rapt and awestruck attention of my cousin Bobby and me.

My dad's cheerfully-told flying stories sparked an interest that grew into a lifelong passion for aviation. I wound up spending 32 years in the U. S. Air Force, flying airlift in the C-141, living experiences not unlike his. My cousin Bobby took a different path, but no less fulfilling and certainly no less important. He was pulled to the local airport in Cynthiana, Kentucky. Today, Bobby is the proud owner of a Cessna 172, and he serves as the non-paid manager of this highly successful little airport bounded by the Licking River, a set of train tracks, and a farm.

Lesson: Always remember that your words have the power to motivate and inspire, and never forget who might be listening.

Passing the Torch

It is truly fitting that my dad's last outing, the weekend before Father's Day, was a trip to the Cynthiana Airport for an EAA Young Eagles event. Cynthiana had been the site of his very first airplane ride in a Ford Tri-Motor. It was his chance to watch fellow aviators pass the torch by igniting the spark of interest in the next generation of flying enthusiasts.

It was a poignant and powerful day, watching my dad watch cousin Bobby use his airplane to introduce another generation to the wonders of aviation. While Bobby flew, his wife Jeana ran the show; my brother, his family, and I pitched in. Somehow, my dad mustered the courage and resolve to stay for the entire event. He saw 286 kids get airplane rides that day, most for the very first time.

As he and I talked of our many memories on Father's Day, I told my dad how such a day might not have happened without the spark of interest he had ignited for people like Bobby and me.

Lesson: Any pilot can help spark aviation interest in future generations, and every pilot has a duty to do so.

Making (and Preserving) the Memories

A cherished gift from the last few weeks of my dad's life was the chance to share our aviation memories. On his last Father's Day, we sat together, quietly sharing thoughts on lives so heavily flavored by fixing and flying airplanes. One of the best aviation memories was our time together at EAA AirVenture 2010. My dad was awestruck by the aviation wonderland, but the most magical memory came from a chance to fly together in the EAA's Ford Tri-Motor. And when he met EAA founder Paul Poberezney later that day, what an amazing experience it was to hear these two elder statesman aviators sharing airplane stories.

Lesson: Cherish the time you have, and make the most of each moment for the people and the passions in your life.

I hope he realized he had made a difference in this world — as a man, as a father, as an aviator.

ATIS Aviation News Roundup

Huerta Greets Hundreds at AirVenture

On Thursday, July 26, 2012, Acting FAA Administrator Michael Huerta greeted hundreds of eager aviation enthusiasts during the traditional Meet the Administrator forum at this year's EAA AirVenture in Oshkosh, Wis. Although this was Huerta's first time at AirVenture, he quickly made a positive impression on those curious to hear his views on general aviation.

"We see here at Oshkosh the foundations that have made the United States such a great place," said Huerta, referencing the great amount of experimentation, innovation, and freedom on display at AirVenture.

"But with freedom comes a significant responsibility. And that's a responsibility we all have to ensure safety," added Huerta. "Our approach is to work with the GA community to develop non-regulative and proactive strategies." Huerta went on to state that reductions have been made in three fatal accident categories: CFIT (controlled flight into terrain), loss of control in flight, and approach and landing accidents.

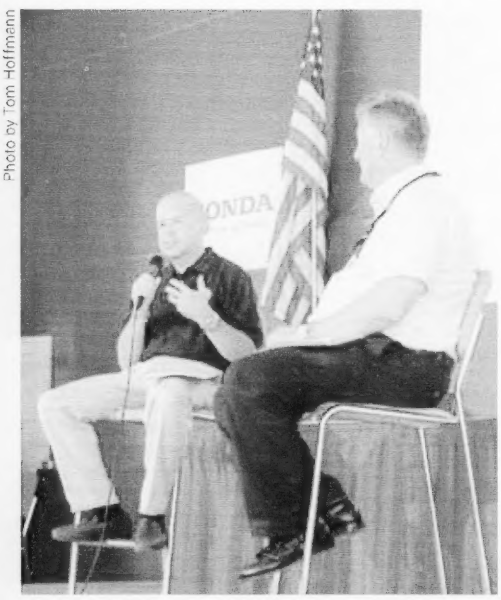


Photo by Tom Hoffmann

"But we have to make GA safer," said Huerta, citing a small uptick in total fatal GA accidents with 271. "Too many accidents are still attributable to conscious risk taking, for example, trying to beat the weather, or not checking fuel prior to takeoff."

In response, Huerta requested that all pilots commit to a personal safety check each time they fly. During that check, he asks pilots to keep a positive flight attitude, avoid complacency, and maintain situational awareness at all times.

Huerta also reiterated his commitment to NextGen programs, specifically the ADS-B infrastructure, which remains on track for nationwide coverage by 2013.

FAASTeam Safety Stream Coming Soon

The FAASTeam is gearing up to launch a new system for aviation safety outreach called FAASTeam Safety Stream (SS). Beginning this fall, SS will provide airmen with access to a continuous stream of easy-to-grasp bytes of aeronautical knowledge custom tailored to their preferences and airman certificates. The channels for distributing content will vary to best accommodate the message and may include email, video, and social media outlets.

Safety messages will be divided initially into three different streams, one each for pilots, aviation maintenance technicians, and flight instructors. Each stream will broadcast three messages per week to start. Pointers to more in-depth information on the subject will always be provided should the airman want to learn more. A series of webinars on aviation safety topics will also be added for those who enjoy a more interactive learning experience.

"Safety Stream will enable thousands more airmen to access our safety messages at any given time," says National FAASTeam Operations Lead Kevin Clover. "The system will also allow us to broadcast season-specific aviation issues, like icing in the winter, or thunderstorms in the summer, as well as target many of the top ten GA accident causal factors."

Stay tuned to www.FAASafety.gov this fall for more information.

New Web Portal Launched for Instrument Flight Procedures

The FAA has launched a new portal, Instrument Flight Procedures Information Gateway, that lets you search for instrument flight procedures, production schedules, and coordination information all

in one location (www.faa.gov/air_traffic/flight_info/aeronav/procedures/application/). At press time, a total of 7,684 airports were available in the portal, which can be searched by state, region, or service area, or by typing the airport identifier into the search field. Searching by state or region makes it easier to find instrument flight procedures coordination data and transmittal letters.

Pilots must create a free account in order to receive updates on procedures. Once logged in, you can search for the specific procedures and request to be notified of any changes to an airport, state, region, or service area. You can cancel the notifications at any time.

For a training video on the portal, go to: www.faa.gov/tv/?mediaId=524.

Comment Period Extended for Medical Petition

The FAA has extended the comment period for a petition of exemption that would allow pilots to fly some GA aircraft without a third-class medical provided they have a valid driver's license and adhere to certain limitations. Pilots now have until September 14, 2012, to submit comments on the proposal that is estimated to affect more than 39,000 pilots. The petition, filed in March 2012 by the Aircraft Owners and Pilots Association (AOPA) and the Experimental Aircraft Association (EAA), would rely on pilots to take an aeromedical education course as well as self-certify their medical fitness prior to each flight. The exemption would also be restricted to VFR operations in single-engine fixed-gear aircraft of 180-horsepower or less and with four seats or fewer.

To view the exemption documents and to submit comments online, pilots can use the Federal eRulemaking Portal at http://www.regulations.gov. Reference docket number FAA-2012-0350.

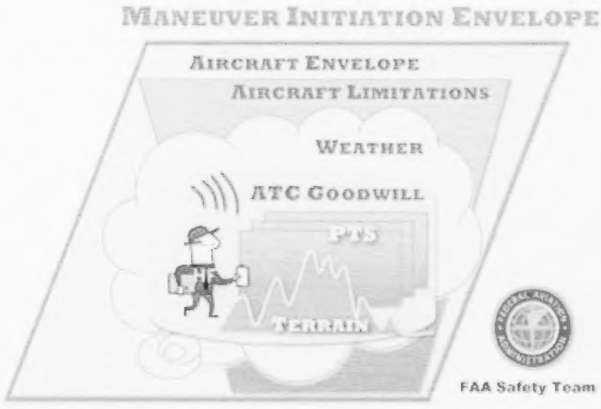
Training Video Now Online for New York North Shore Helicopter Route

A training video is now available on www.FAASafety.gov to help pilots identify and understand the procedures associated with new airspace rules in effect for certain helicopters operating along the North Shore of Long Island in New York. The training provides additional information related to the route in order to ensure pilots are knowledgeable of the rule requirements, recommendations to fly the route safely, and what deviation allowances may be available.

For more information on the New York North Shore Helicopter Route, go to: https://www.federalregister.gov/articles/2012/07/06/2012-16667/the-new-york-north-shore-helicopter-route.

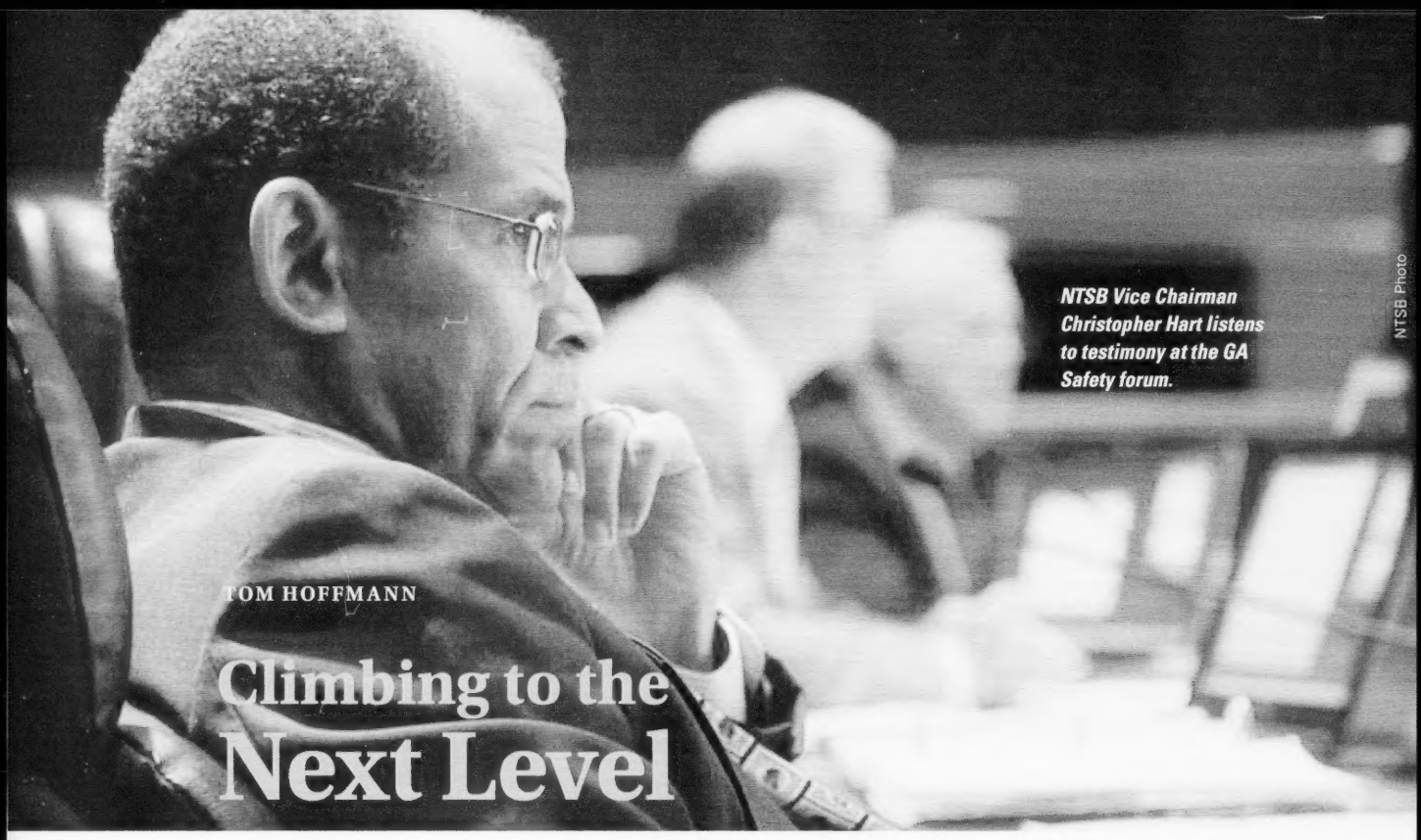
FAASTeam LOC Postcards

Check out a new product from the FAA Safety Team — the Maneuvering Initiation Envelope card. The card was designed as a memory jogger for pilots, and as an instruction tool for CFIs and Designees, that visually illustrates many of the items to consider before beginning a flight maneuver. Such items include the aircraft envelope, aircraft limitations, weather, ATC, practical test standards, human factors, and terrain. See your local FAASTeam Program manager for a copy of the card.



ForeFlight Earns QICP Certification

On July 18, 2012, ForeFlight announced it had earned Qualified Internet Communication Provider (QICP) certification from FAA. The certification means ForeFlight meets the rigorous requirements FAA sets out for Internet weather providers for reliability, accessibility, and security. This certification allows part 121 and 135 operators to list ForeFlight as their approved QICP. It also means that ForeFlight may be used as an official weather source. For more information on the QICP criteria see AC 00-62, available at: http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgAdvisoryCircular.nsf/list/AC%2000-62/$FILE/ac00-62.pdf.



NTSB Vice Chairman Christopher Hart listens to testimony at the GA Safety forum.

NTSB Photo

TOM HOFFMANN

Climbing to the Next Level

NTSB Forum Puts Spotlight on General Aviation Safety

With significant flying experience among three of the five sitting National Transportation Safety Board (NTSB) Board Members, the Board's personal penchant for safety in the skies should come as no surprise. In fact, with the extensive efforts of both the FAA and NTSB over the last few decades, civil aviation safety has reached an unprecedented level of improvement.

However, one sector of aviation continues to buck the trend of safety improvement: general aviation. Even more perplexing is the fact that with GA there are very few "new" accidents. As NTSB Board Member Dr. Earl Weener describes in a recent NTSB video, "the circumstances surrounding these accidents are almost always a repeat of previous ones. This must change."

Given this renewed desire to effect change, the NTSB organized a two-day safety forum on June 19-20, 2012, specifically geared for the issues affecting GA. The NTSB's goals for the forum were to:

- Raise awareness of the GA accident rate and associated recurring safety issue areas;
- Promote and facilitate dialogue about these issues;
- Determine how to effectively address these issues to improve the safety of GA operations for the future.

Subject matter experts from government, industry, and academia served on eight panels. Scheduled over two days in the NTSB's auditorium, panels covered everything from pilot training and weather-related decision making to aircraft design and maintenance.

"GA pilots are not learning from the mistakes of their pilot brethren," noted NTSB Chairman Deborah Hersman in her opening remarks. "They are not learning lessons that have been learned in the hardest of ways." Chairman Hersman also stated that GA safety is "personal," given the tragic loss of their Chief Medical Officer, Dr. Mike Duncan, in a recent GA accident. She and other members observed that over the last 10 years, the GA accident rate has averaged more than 1,500 a year — about four accidents a day. GA accidents also account for 97 percent of all fatal accidents, despite the fact that GA flying only accounts for about half of all flight time in U.S. civil aviation.

To address this issue, the FAA has stepped up efforts to make improvements with its Five-Year GA Safety Plan. The plan, as described by FAA executives Tony Fazio and Mel Cintron during the NTSB safety forum's opening panel, uses a data-driven, consensus-based approach to analyze safety data. Information from that analysis is then used by the GA Joint Steering Committee (a government/industry group) to develop specific accident mitigation strategies. The

current priority focus is on preventing loss-of-control (LOC) accidents, one of the leading causal factors for GA accidents. Fazio told the Board that 23 of the 27 safety enhancements proposed for LOC have been accepted for implementation, the next step.

Another critical focus area of the safety forum was the role of the flight instructor. Several panelists, including FAA's GA Training and Certification Branch Manager Jim Viola, discussed the vital role of CFIs and how they have a potential to make a significant impact on safety. Viola reviewed the current requirements for becoming a CFI, explained the importance of participating in the WINGS program, and mentioned how the FAA will begin looking at the use of risk-based tools to identify CFIs for surveillance and/or outreach.

Doug Stewart, executive director of the Society of Aviation and Flight Educators (SAFE), joined Viola on the panel and focused on the role of primary CFIs, who, according to Stewart, are often low-time neophyte instructors. "We need to instill responsibility to create safer skies with safer pilots," said Stewart regarding the important role instructors play in primary flight education.

In her closing remarks, Chairman Hersman also commented on the importance of sound flight instruction, stating that its connection to safe piloting is one thing everyone seemed to agree on. Other consistent messages: The GA community is not homogenous; we have a lot of data about fatal accidents, but better data will enable better decisions; and no matter what the technology, the innovation, or the information, it is up to the general aviation community — pilots, instructors, mechanics, and others — to make good use of it. The latter, many would agree, is the biggest challenge to moving the needle on GA safety, a challenge to ultimately foster a culture of safety beyond what prevails today. Collaborative and thought-provoking discussions like those at this NTSB safety forum can certainly assist.

Tom Hoffmann is an editor of FAA Safety Briefing. *He is a commercial pilot and holds an A&P certificate.*

Learn More

The forum was streamed live and an archived webcast is currently available at www.capitolconnection.net/capcon/ntsb/ntsb.htm . For more information, photos, and copies of the presentations from the forum, go to www.ntsb.gov/news/events/2012/GA_safety/index.html.

Keep Informed with

FAA's Aviation Maintenance Alerts

Aviation Maintenance Alerts (Advisory Circular 43-16A) provide a communication channel to share information on aviation service experiences. Prepared monthly, they are based on information FAA receives from people who operate and maintain civil aeronautical products.

The alerts, which provide notice of conditions reported via a Malfunction or Defect Report or a Service Difficulty Report, help improve aeronautical product durability, reliability, and maintain safety.

Recent alerts cover:

- cracked seat frame on a Cessna 172P
- throttle cable separation on a Piper PA44-180 *Seminole*
- blocked fuel tank drains on the Mooney M20J

Check out Aviation Maintenance Alerts at: http://www.faa.gov/aircraft/safety/alerts/aviation_maintenance/

FREDERICK E. TILTON, M.D.
FEDERAL AIR SURGEON

Aeromedical Advisory

The All-Seeing C-F-Eye

However eager they are when they take the first steps toward achieving their dreams of flight, most aspiring pilots are not aware of many of the requirements necessary for certification. One of those requirements is medical certification. For most pilots, understanding and knowledge of aviation medical standards revolves around their own medical certification. But the aviation educator must go beyond individual circumstances and take on the crucial role of mentor and guide who can shepherd the new pilot through all the things that experienced pilots regard as routine. In short, you are not just a CFI, but a "seeing eye" for everything from operations, to minor maintenance issues, to medical certification requirements.

That's why your aeromedical knowledge should go above and beyond. You must know how to clearly explain the basic qualifications and duration for each class of medical certificate, and make sure your student understands the conditions and limitations for the class of medical certificate he or she needs. The aviation educator should also be conversant with the basics of special issuance. This obligation includes not just being able to teach (or preach?) about sound aeromedical practices, but also to model and exemplify aeromedical discipline.

Medical Role Model and Educator

I can't stress enough the importance of the role model responsibility you have as an aviation educator. If you see something questionable and don't speak up, the student will assume the behavior in question is appropriate. Whether it's medication use (prescription or otherwise) or fatigue, your students will interpret your silence as acceptance or, worse yet, approval. In your quest to develop your students' self-awareness and judgment, start by asking questions. If your sniffling student pulls out a pill bottle during the preflight, it's a good time for you to make gentle inquiries; "Did you ask your AME about flying on those meds?" It could be something as simple as an over-the-counter cold medicine. A new pilot will probably not understand that side effects of such medications could be debilitating in the aviation world. Asking the question reinforces the concept that medical certification goes beyond the visit to an AME, and also that serious self-evaluation (using tools such as the IM SAFE checklist) is important.

And — you knew it was coming — that goes for you, too. No instructor likes to cancel a flight because of a common cold, but how can you give the student your best in terms of safety and instructional value when you're not at your best? And, what lesson are you teaching when you tell the student to be mindful of the safety implications of flying when the pilot is physically under the weather, but you model behavior inconsistent with that point?

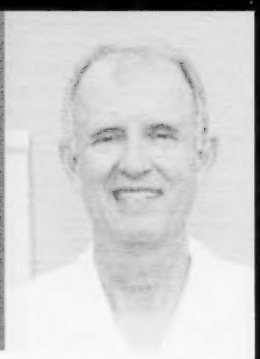
When it comes to educating students on aeromedical topics, the FAA does not expect you to be an AME, but it does expect that you will spend more than just a few minutes on the topic in one of your lesson plans. To help you hash out the key points, the FAA's Office of Aerospace Medicine offers a number of resources at little or no cost. You also have this magazine, which always includes a section that allows you to ask questions about specific medical topics. Additionally, you can find many of those resources at: www.faa.gov/pilots/training/airman_education/ and www.faa.gov/pilots/safety/pilotsafetybrochures/.

Another source is the Federal Air Surgeon's Medical Bulletin (online: www.faa.gov/library/reports/medical/fasmb/). While the bulletin's primary audience is AMEs, it covers a lot of information that a flight instructor would find useful. The FASMB is published quarterly, and can provide insight on what is coming and why we make certain decisions.

Spending time reviewing these resources will not only help you with your own medical certification, but it will also help you be a better CFI.

Frederick E. Tilton, M.D., M.P.H., received both an M.S. and an M.D. degree from the University of New Mexico and an M.P.H. from the University of Texas. During a 26-year career with the U.S. Air Force, Dr. Tilton logged more than 4,000 hours as a command pilot and senior flight surgeon flying a variety of aircraft. He currently flies the Cessna Citation 560 XL.

Ask Medical Certification



Q: My neurologist has talked to me about various treatments available for Multiple Sclerosis, including Tysabri and Gilenya. What are the prospects and possible timelines for FAA approval of these drugs?

A: While there are a number of medications that can be used for Multiple Sclerosis that are compatible with safe flying, neither of these drugs are. However, if your treating physician feels these medications are absolutely needed, you will have to make the appropriate decision.

Q: I hold a third-class medical with an Airplane Single-Engine Land (ASEL) private pilot and IFR rating. A few months ago I had a stress electrocardiogram (EKG) which showed a series of extra beats which were originally interpreted as ventricular. I was cathed on the next day and my coronary arteries were normal. I was referred to an electrophysiologist who arranged a 30-day Holter monitor. This showed no abnormality. Repeat EKGs have been normal. Review of the stress EKG by the electrophysiologist showed that I had premature atrial contractions at that time, but they have not recurred. I am on no medications and am very active physically. I have had a repeat stress EKG which is normal. What information do I need to have ready for my next third-class medical?

A: You will need to present us with copies of all the records related to these events, including the heart catheterization report and the actual tracings from your stress test. You also need to submit to us an echocardiogram report. Lastly, please provide a current (within 30 days of your exam) Cardiovascular Evaluation which your treating physician should be able to provide for you.

Q: I had some routine blood work done for my health insurance and they discovered low platelets and a low white blood cell count. After some tests, a hematologist diagnosed me with hemochromatosis and refered me to a liver specialist. The liver specialist determined that I have non-cirrhotic portal hypertension. The liver biopsy also showed fatty liver, but no cirrhosis. I also had grade II esophageal varices which were banded and eradicated. I am taking 20 mg of Nadolol one time daily to reduce portal hypertension. After almost a year of phlebotomies, my iron levels are now normal, and so are my liver enzymes. My liver function is also normal. My medical doesn't come up for renewal until October 2013. Is it likely that I will still be able to get my third-class medical?

Send your questions to SafetyBriefing@faa.gov. We'll forward them to the Aerospace Medical Certification Division without your name and publish the answer in an upcoming issue.

A: People with hemochromatosis have been able to qualify for their medical certificate. In your case, the most concerning issue for flying would be the history of esophageal varices. You will need to provide us with good documentation of the banding procedure and a current status report from the physician who performed it. We will also require the reports of all tests and treatment records related to the hemochromatosis and a current status report from your treating physician.

Dr. Scott is the Manager of the Aerospace Medical Certification Division in Oklahoma City, Okla. He is board certified in aerospace medicine and has extensive practice experience in civilian, and both military and non-military government settings.

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Photo Courtesy of Frasca International

MARCEL BERNARD

Real Learning through Flight Simulation

The ABCs of ATDs

The dawn of flight training awakened more than pilots, instructors, and airplanes. It also brought to light a need for ground trainers that would enable the safe and effective practice of particular procedures. Industry has responded, and aviation ground trainers have evolved significantly over the years, along with their aerial counterparts.

The regulatory structure for aviation ground trainers has evolved as well. At present, the FAA assigns these devices into three main categories: *flight simulators, flight training devices, and aviation training devices*. From airline training and corporate flying to the private pilot in general aviation aircraft, almost every pilot will eventually use at least one of these devices to practice and improve pilot skills or to help transition to another aircraft. As most pilots will attest, flight simulation of any variety is often the quickest route for learning to fly.

Today's Training Devices

Full Flight Simulators (FFS)*: The more capable (and most expensive) aviation training devices fall in to this category. FFSs must include motion and visual capability, and it is possible to earn a type rating (e.g., MD-80, B-737-800, BE-500) in the more sophisticated simulators without flying the actual aircraft. All levels of FFSs are objectively evaluated against airplane specific validation data (typically aircraft flight test data) to ensure that the FFS's aerodynamics, flight controls characteristics, and ground handling characteristics represent a specific make, model, and series of aircraft. A type rating is required for operating aircraft that are turbo jet powered or over 12,500 pounds. maximum certified takeoff weight. Many FAA-approved Part 142 schools use simulators to train professional pilots for type ratings and to deliver the recurrency training required by regulation and insurance companies.

Flight Training Devices (FTD)*: These devices are designed to represent a specific aircraft configuration and, depending upon the FTD's qualification level, may include an enclosed cockpit and realistic visual references. They are not always motion capable, but are sophisticated enough to provide training in preparation for commercial and airline transport pilot certificates, as well as other ratings. FTDs are extremely

popular with aviation-oriented universities and colleges. The airline industry also uses these devices extensively to train new hires or provide for upgrades (First Officer to Captain) and transition training (e.g., B-737 to B-747 aircraft), or for recurrency training.

**Note: Full Flight Simulators and FTDs (collectively called Flight Simulation Training Devices – FSTDs) come under the guidance, evaluation and approval of the FAA National Simulator Program in Atlanta and are regulated under 14 CFR part 60.*

Aviation Training Devices (ATD)

ATDs are by far the most common option for general aviation flight training, and GA has benefited greatly from the development of these very capable devices. Many Part 141 and Part 61 flight schools use these devices to train students in preparation for private, multi-engine, instrument, and commercial certificates.

The FAA's General Aviation and Commercial Division (AFS-800) manages the evaluation and approval of ATDs, which are categorized into basic and advanced training devices. To do so, AFS-800 uses the requirements for performance and capability specified in Advisory Circular (AC) 61-136, which was published in July 2008. This document describes how the FAA approves ATDs, along with providing a summary of how pilots may use these devices. Let's take a look.

Basic Aircraft Training Device (BATD)

A BATD generally has hardware and software features that allow the FAA to authorize it for certain training and proficiency credits. These credits include:

- Instrument rating - maximum of 10 hours under 14 CFR section 61.65(i) or 14 CFR part 141, appendix C
- Instrument Proficiency Check - per FAA-S-8081-4E (circle-to-land not authorized)
- Use in accomplishing instrument recency of experience requirements of 14 CFR section 61.57(c)(2)
- Not more than 2.5 hours of training under 14 CFR section 61.109(k)(1) on introduction to operation of flight instruments (except as limited by 14 CFR part 141 appendices)

Advanced Aircraft Training Device (AATD)

An AATD must meet BATD-approval criteria, but it must also incorporate additional features and systems fidelity that provide ergonomics representative of a category and class of aircraft flight deck. The AATD does not need to replicate a specific aircraft make and model, although many devices do.

These features allow the FAA to authorize an AATD for the following training and proficiency credits.

- Private pilot certificate - maximum of 2.5 hours
- Instrument rating - maximum of 20 hours
- Instrument Proficiency Check - per FAA-S-8081-4E (circle-to-land not authorized)
- Commercial pilot certificate - maximum of 50 hours
- Airline Transport Pilot certificate - maximum of 25 hours
- 14 CFR part 141 as limited by the applicable appendices, or under a special curriculum approved under 14 CFR section 141.57

A quick way to remember the difference between *basic* and *advanced* is that the advanced version must be more representative of the aircraft cockpit design. It must also include a GPS and autopilot configuration.

Real Training, Real Learning

If you are looking for a flight school, it might be worth your while to consider a flight school that has an FAA-approved aviation training device. Such a school will have an FAA letter of authorization (LOA) that accompanies the device. The FAA only allows credit for 2.5 hours towards the certification

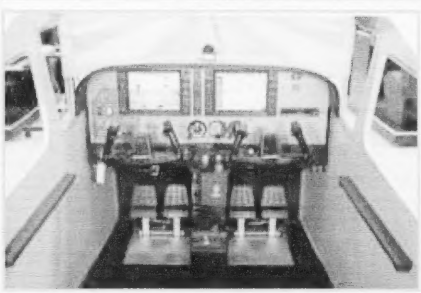
Photo Courtesy of Frasca International

minimum required for private pilot certification, but there is no prohibition on additional use of these devices in training. On the contrary! According to recent FAA records, the national average to complete the private pilot certificate is approximately 75 hours of flight time. Some flight schools use FTDs and ATDs to practice the maneuvers and procedures in advance of the flight training portion of their curriculum. Doing so allows students to graduate sooner with less total flight time needed to complete their training.

Here's the bottom line: Even if you can't log every hour spent in an ATD to count toward your certificate or rating, training in an ATD can maximize your training time and minimize the money you spend by enabling you to learn basic procedures in the ATD, and then master them in the actual aircraft. Another advantage is the ability to train when the weather is not cooperating or if an aircraft is not available. This advantage prevents undesirable breaks that can hamper your ability to practice and retain certain skills. Teaching is also much more productive in an ATD, where distractions such as noise and turbulence can be kept to a minimum. The ability to hit the pause button and then explain or review a certain training skill on the spot is another huge advantage. Last but not least, ATDs permit practice of emergencies and other demanding skills with a level of safety that might not be possible in actual aircraft.

Using aviation training devices will save time, money, and the environment, and allow everyone to fly more safely.

Marcel Bernard is an FAA Aviation Safety Inspector and the Aviation Training Device Manager with the General Aviation and Commercial Division in Washington, D.C. Marcel currently holds an ATP and Flight Instructor certificate with Multi-Engine and Instrument privileges. His experience includes managing an FAA-approved Part 141 flight school along with having conducted more than 20,000 hours of flight instruction.



Photos (top 2) Courtesy of Frasca International, (bottom) Courtesy of Redbird Flight Simulations

Full Flight Simulator (FFS) – A replica of a specific type or make, model, and series aircraft cockpit. This includes the assemblage of equipment and computer programs necessary to represent aircraft operations in ground and flight conditions, a visual system providing an out-of-the-cockpit view, a system that provides cues at least equivalent to those of a three-degree-of-freedom motion system, and the full range of capabilities of the systems installed in the device as described in 14 CFR part 60 and the Qualification Performance Standards (QPS) for a specific FFS qualification level.

Flight Training Device (FTD) – A replica of aircraft instruments, equipment, panels, and controls in an open flight deck area or an enclosed aircraft cockpit. It includes the equipment and computer programs necessary to represent aircraft (or set of aircraft) operations in ground and flight conditions having the full range of capabilities of the systems installed in the device as described in 14 CFR part 60 and the Qualification Performance Standard (QPS) for a specific FTD qualification level.

Aviation Training Device (ATD) – A replica of aircraft instruments, equipment, panels, and controls in an open flight deck area or an enclosed aircraft cockpit. It includes the equipment and computer programs necessary to represent aircraft (or set of aircraft) operations in ground and flight conditions having the full range of capabilities of the systems installed in the device as described in AC 61-136 for a specific Basic or Advanced qualification level.

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With this online option you can complete FAA Form 8500-8 in the privacy and comfort of your home and submit it before your appointment.

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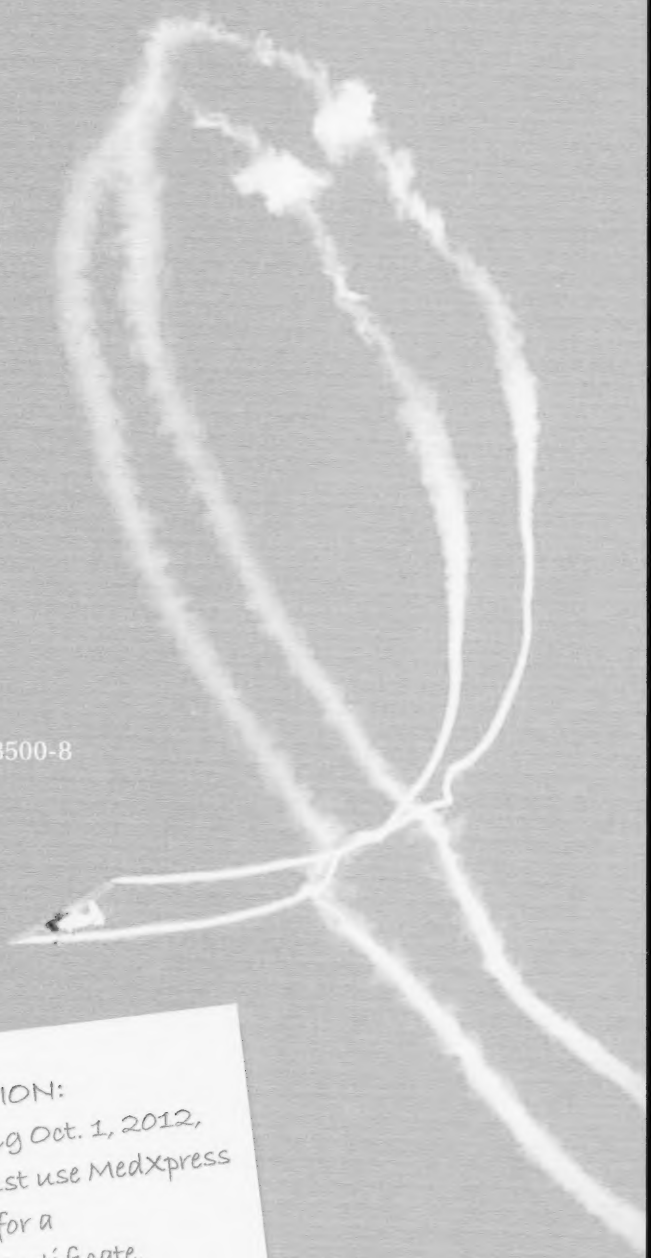


ATTENTION:
Beginning Oct. 1, 2012, pilots must use MedXpress to apply for a Medical Certificate.

Photo by Raymond G. Stinchcomb

DOUG STEWART

So You Want to Be a Flight Instructor?

How would you respond to a help wanted advertisement that stated, in part: "... applicant must be very responsible and of the highest integrity; must have effective communication skills; must be capable of human, mechanical, technical and meteorological analysis; must be adept in managing risk; a continuing education program is mandated; proficiency in working in cramped spaces is required? Work hours can be long. No guarantee of a climate-controlled work environment. Pay commensurate with experience. Benefits include: high respect from your clients; a lofty perch from which to view the world; travel to exciting places; and the knowledge that your job is the most important job of all those available in this field of endeavor."

Sound good? Well, I have just such a job. I am a full-time flight instructor. True, there are more lucrative ways of earning a living in aviation, but I assert that there is no other aviation endeavor that is as rewarding and satisfying as sharing the gift of flight by teaching others to be safe, knowledgeable, and proficient pilots. And those flight instructors who teach primary flight students undoubtedly play the most important role of anyone in aviation.

The reason that the primary flight instructor has this most critical position is because of the immutable law of primacy — the things we learn first are the things we retain — and also the hardest things to change. To this day, I remember my first flight lesson. It was pretty much a "kick the tires, light the fires" kind of experience, certainly not a great way to lay the first stones of the foundation. And even to this day, after many thousands of hours of flying, I have to consciously overcome some of the bad habits I acquired on that first flight. That's why the primary flight instructor has the most important job of anyone in aviation, bar none.

Do You Have the Right Stuff?

With this point in mind, what qualities and attributes should be instilled, developed, nurtured, and embraced by those who teach flight, especially by those who will be teaching primary flight students? Here's my list.

Responsibility is at the very top of the list. The flight instructor is the single most important element in creating safe pilots. The flight instructor bears responsibility for ensuring that clients embrace not only solid stick-and-rudder concepts and skills, but just as importantly the elements of risk management critical to being safe pilots. The flight instructor is the person who sets the stage for the rest of the entire flight career of each primary flight student.

That's why the most important thing we need to instill in the minds, hearts, and souls of flight instructors is to ensure that they not only understand the critical responsibility they are being entrusted with, but also to make certain that they buy into that responsibility. They need to understand that even if they are only going to use the flight instructor certificate as a means of building hours so that they can move on to air carrier flying, they still have an immense responsibility during every hour logged in the right seat of a training airplane. It is no exaggeration to say that these hours matter enormously not only to their clients, but also to the future of general aviation.

Respect is next on my list, and it has three parts. First is respect for the responsibility that they have been entrusted with. Second is respect for their clients. Third is respect for themselves as instructors.

Respect for our responsibility is somewhat self-explanatory, but also addressed above as the first item on my list. Respect for clients includes a number of professional attitudes and behaviors, starting with the concept that we will always have a syllabus, lesson plan, or curriculum and that we ensure our clients are aware of it. We show respect by being punctual. We show it by communicating not in aviation jargon, but in language they can understand as novices. Most beginning flight students don't understand aviation-speak and, though they will learn it as they progress, respect means meeting them where they are when they arrive. Another important way to show respect is to adjust our teaching style to the way they best learn.

The flight instructor is the single most important element in creating safe pilots.

Another immutable rule — the rule of karma — comes into play regarding respect. As the saying goes, what goes around, comes around. If respect is shown for the responsibility one holds as a flight instructor, and if respect is shown to clients, it will come back one thousand fold to those who show it. You will quickly realize that being a flight instructor is a vocation that you can, and should be exceedingly proud to practice.

Photo by H. Dean Chamberlain

Integrity follows in the list of qualities crucial to being a flight instructor with the right stuff. It is integrity that dictates being honest when answering questions. That includes admitting when we don't know the answer, but promising to do research before the next meeting and deliver the answer then, without fail. It is integrity that dictates declining to provide training in aircraft or avionics unfamiliar to you. It is integrity that mandates a flight review be a genuine review, and not just a short hop to a nearby airport for lunch and back. It is integrity that drives a "do as I do" mentality, understanding that the flight instructor is a role model for the primary flight student, and that every observed action will most likely be modeled by the client.

And it is integrity that mandates a high level of situational awareness. This means that the instructor is not only aware of the client's wants and needs, but is constantly aware of, and diligent in managing, the risks of flight. An instructor who is truly effective in this area is teaching the elements of risk management (at a level that the client can understand) right from the very first lesson.

Communication is another quality integral to being a proficient aviation educator. Understanding that communication is a sharing of information — a two-way endeavor and not just a one-sided lecture — is vital to success both for instructor and client. You need to have (or develop) the knowledge and skills to communicate in a variety of fashions, including non-verbal, and to recognize that effective communication can be highly dependent upon the situation at hand. A good educator must be able to teach with regard to the myriad learning styles, preferences, and experiences that clients bring to the table. A flight instructor must also learn that proactive communication is essential, as is the ability to deliver critical messages in a way that does not demean, demoralize, or demotivate.

It quickly becomes evident to anyone who starts to teach that the true learning begins once the teaching starts … *and it never ends.*

Continuing Education is another item on my list of "right stuff" qualities for the aviation educator. It very quickly becomes evident to anyone who starts to teach that the true learning only begins once the teaching starts... *and it never ends.* After providing more than 10,300 hours of flight instruction, I can truly say that part of the excitement of my job is that I can look forward to learning more on virtually each and every encounter with a client. It is critically important that the concept of continuing education be instilled not only in the neophyte instructor, but even more importantly in the earliest hours of a student pilot's engagement with aviation. The aviation educator must inculcate the mentality and instill the habit of continuing education into every client, leading them to understand that training doesn't end at the conclusion of regulatory minimum requirements. Rather, lifelong learning is a core part of being a pilot. If we succeed in this area, then we will have gone an immeasurable way toward reducing the GA accident rate.

Mentoring is an important element of continuing education. How nice (and how beneficial) it would be if every beginning flight instructor had a mentor to consult for advice and counseling. It is interesting and noteworthy (but not in a good way) that the United States is one of the few countries, if not the only country, where a low-time CFI is granted the authority to recommend a pilot for a certificate or rating. Most other countries mandate an apprentice period for low-time instructors, much as air carriers do for new hires and new captains, as a way of ensuring that continuing education occurs and develops experience. I strongly believe it would be advantageous if we in the United States voluntarily adopted this mentality.

It's Worth It

So, you'd like to be a flight instructor? Yes, it can be daunting. Yes, it requires high levels of responsibility, respect, integrity, communication and continuing education. Yes, it means that you will be working in environments that at times are less than conducive to teaching/learning. But it also means that you will be fulfilling one of the most critical roles in aviation — that of creating safe pilots. It means that you will be gaining the respect and friendship of those you teach. It means that you will be part and parcel of the sustenance of aviation as we know it. And if you are doing it right, it means that at the end of the day you will have a marvelous sense of satisfaction in knowing that your job is the most important of all those to be had in aviation!

Doug Stewart is the 2004 National CFI of the Year, a Master CFI and a DPE. He operates DSFI, Inc. (www.dsflight.com) based at the Columbia County Airport (K1B1), and he serves as Executive Director of the Society for Aviation and Flight Educators (SAFE).

By *the* Book

What Are the Requirements for CFI?

SUSAN PARSON

If some of the articles in this issue have inspired you to consider becoming a flight instructor, 14 CFR 61.183 lists the regulatory requirements you'll need to meet. As always, read the rules for definitive guidance, but here are the basics:

You Need to Be ...

- At least 18 years of age
- Able to read, write, and speak the English language
- Holder of a commercial pilot certificate or ATP certificate with aircraft category and class rating appropriate to the flight instructor rating being sought
- Holder of an instrument rating (see 14 CFR 61.183(c)(2) for additional details)

You Need to Obtain ...

- Logbook endorsement on fundamentals of instruction listed in 14 CFR 61.185
- Logbook endorsement on areas of operation listed in 14 CFR 61.187(b)
- Logbook endorsement indicating competence and instructional proficiency in stall awareness, spin entry, spins, and spin recovery and, at the examiner's discretion, demonstrate such instructional proficiency on the practical test.
- At least 15 hours logged as PIC in category and class appropriate to the flight instructor rating sought.

You Need to Pass ...

- Knowledge test on fundamentals of instruction (*see 14 CFR 61.183(e) for alternatives to this requirement*)
- Knowledge test on aeronautical knowledge areas listed in 14 CFR 61.185(a)(2) and (a)(3) appropriate to the flight instructor rating sought
- Practical test appropriate to the flight instructor rating being sought

You Need to Know ...

A lot! No, you won't find those words in the regulations, but any and every instructor will attest to the truth of the sentiment. Remember that an aviation instructor is supposed to have more than mere knowledge of the required subject areas. As stated in the Flight Instructor PTS, the requirement is for

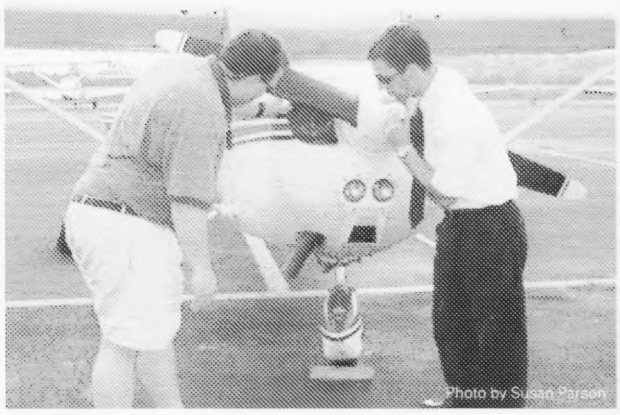


Photo by Susan Parson

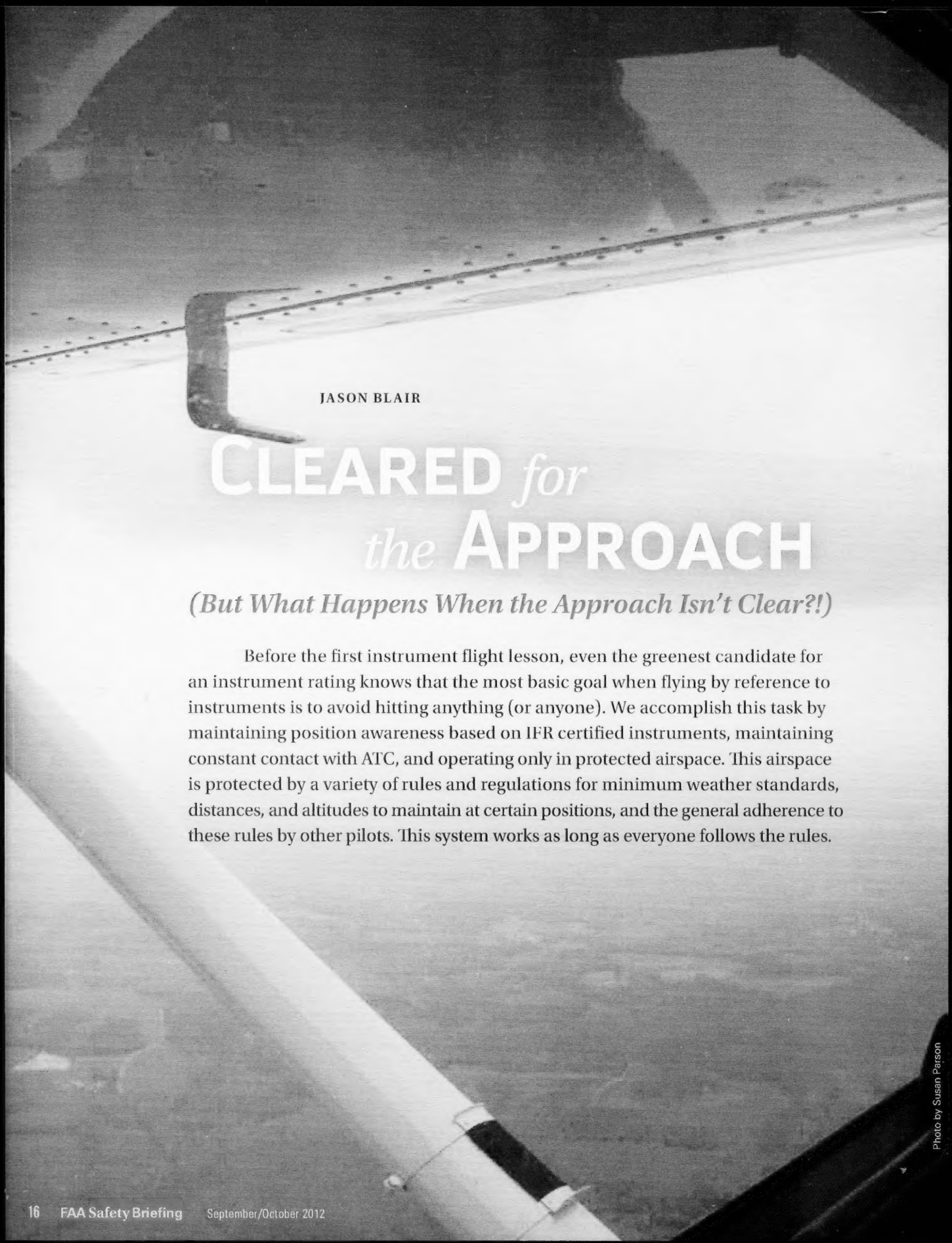
instructional knowledge on everything from aerodynamics to zero-fuel weight. Applicants must show the ability to not only recognize and analyze errors, but also to demonstrate and explain the key elements of required tasks.

Please don't skim lightly over "little things" like, say, endorsements. Instructional knowledge of endorsements and other documentary requirements is an important part of the flight instructor's job. To make that point, one examiner I know hands every CFI applicant a blank copy of a student pilot certificate with the instruction to "make me legal for solo." You can (and you should) use appropriate references (e.g., AC 61-65E) for such a task, but you should be familiar with both the basics and the basic references. And if you are going to work as a flight instructor, please learn (and teach) the distinction between certificates and ratings, and make sure you can also explain how endorsements fit into the picture.

Please don't skim lightly over "little things" like endorsements.

Certificated or Certified?

What does the "C" in CFI really stand for? The FAA has not published definitive guidance on this point, and the regulations often use the term "authorized" instructor. Since 14 CFR part 61 usually frames references in terms of entities or aircraft "certificated" by the FAA, the term "certificated" flight instructor is most accurate.



JASON BLAIR

CLEARED *for the* APPROACH

(But What Happens When the Approach Isn't Clear?!)

Before the first instrument flight lesson, even the greenest candidate for an instrument rating knows that the most basic goal when flying by reference to instruments is to avoid hitting anything (or anyone). We accomplish this task by maintaining position awareness based on IFR certified instruments, maintaining constant contact with ATC, and operating only in protected airspace. This airspace is protected by a variety of rules and regulations for minimum weather standards, distances, and altitudes to maintain at certain positions, and the general adherence to these rules by other pilots. This system works as long as everyone follows the rules.

Photo by Susan Parson

But it is also important for you as an instrument instructor to convey to any and every IFR client — whether for the initial rating, approach practice, or Instrument Proficiency Check (IPC) — that a pilot can never, ever, *ever* relinquish responsibility for situational awareness.

Here's a story I now use to illustrate and instruct on that very point. In my travels to Sun 'n Fun last year, I think I came as close to a mid-air collision as I ever have in my many years of flight experience. I am not entirely sure how close it was; we were in IFR conditions and I never spotted the other aircraft. But it was certainly as close as I ever want to come.

Setting the Stage

The weather for the trip was mostly IMC (instrument meteorological conditions) from Michigan to almost the Gulf Coast. Some areas to the south had strong storms, but our first leg looked like general IFR with a good chance of being able to fly VFR on top most of the way. Our first stop was in Bowling Green (KBWG), Kentucky, a non-towered airport.

Approximately 40 miles out, we picked up the weather, noting that the 700-foot ceiling certainly was going to require us to fly the ILS. With cloud tops around 3,300 feet mean sea level (MSL), only the approach portion of the procedure was really going to be in IMC. I typically love approaches where I know I am going to break out, and where I won't be spending a long period of time in the clouds prior to the final approach fix.

Temperatures were hovering near the freezing level, so we had some concern about heading into the clouds with icing potential. While temperatures at altitude were slightly above the freezing point, many times the dive back into the clouds can result in lower temperatures since those clouds block heat from the sun. Icing is definitely not a condition I want to encounter in a Cherokee not equipped for flight into known icing.

Act One

Memphis Approach began setting us up for the procedure, vectoring us south of the airport to come back in on the ILS to Runway 3. As we began our setup, a friendly Beechjet driver contacted Memphis approach on the same frequency. His fuel stop was also KBWG. His situational awareness as we both approached the airport may be the reason I'm still here. But more on that in a moment.

Normally I would expect an approach controller to work the jet into the sequence first, with our slower aircraft playing a second fiddle. In this case, the generosity of the Beechjet driver made the situation much better than it could have been. He courteously offered to take a hold and let us go first on the approach, keeping us from having to spend significant time in the clouds where icing was a possibility. With his more capable aircraft, he was willing to wait. Memphis consented, and continued vectoring us toward the final approach fix while the Beechjet pilot set up for the hold at 4,000 MSL.

Act Two

As we continued with the approach, we began to experience very light rime icing. While we were evaluating this development, the Beechjet pilot made an attention-getting query: "Memphis approach, Beechjet 1234, we were just wondering if you were working two aircraft toward the final approach fix at Bowling Green." My full attention went instantly to processing this information and listening as Memphis replied that they were only working with "the Cherokee" (us) and the Beechjet. Memphis had received some intermittent replies in the area before, but was no longer observing them. To this, the Beechjet pilot replied, "Okay, but as we look at our TCAS (traffic collision avoidance system), we are seeing two transponder replies, one at 3,000 and one at 2,400 converging." Now I was *really* "interested," to put it mildly. We were at 3,000 MSL, just about to begin our descent toward the final approach fix.

I immediately asked Memphis if they had any further information. They didn't. Unwilling to continue with such scant but scary information, we asked permission to leave the frequency and inquire on the local Common Traffic Advisory Frequency (CTAF) if there was any other traffic in the area. Permission granted. We made the call. And — lo and behold — we heard from a Cessna 172, whose pilot reported that they were "on the ILS for Bowling Green." We queried further: "Are you on an IFR clearance and working with an approach controller?" The answer: "Well, um, gee, we are out here shooting the approach ...."

Act Three

I was as stunned as I was intensely concerned. Here we were, in actual IMC, about to descend, and we find out — solely through the good fortune of having an alert fellow pilot who was paying attention and willing to speak up — that there was another aircraft on the approach, in IMC, shooting the approach without any coordination with air traffic

Photo by James Williams

control. And did I mention that ice was already forming? If we saw it, they must be experiencing it as well.

Our next transmission was to ask the C-172 to "exit the approach procedure" and allow our flight, which was operating with an ATC clearance, to continue and also to accommodate the the Beechjet now holding for the same approach. Fortunately for all involved, he complied. I may never know exactly where the C-172 went, but I know we broke out around 700 AGL, right about where the cloud bases were reported. It requires no mental math to conclude definitively that the C-172 was wandering around in IMC, just off the approach path, without any clearance or communication with ATC for some undetermined additional period of time.

Situational awareness of your own position, and your position relative to that of other aircraft in your area, can help keep us all safe. This story also illustrates the importance of speaking up when something doesn't look, sound, or feel right.

How close did we come to a mid-air? I am not entirely certain. I do know that when we were on the ground, the Beechjet pilot, who had landed shortly after we did, told us that at one point his TCAS showed the "blips" overlapping with just a mere few hundred feet of altitude separation. I know that at one point, the C-172 was at 2,400 MSL while we were at 3,000 MSL. That alone put us as close as 600 feet apart, in IMC. Scary? You bet.

Final Act

The obvious lesson — certainly one I am sure you teach and stress to all your IFR clients — is that flying in IMC without a clearance in controlled airspace is both illegal and extremely dangerous. I would like to think that is a lesson that pilots already know and don't need to learn, but of course the C-172 pilot near KBWG that day demonstrated conclusively that at least one pilot needs a refresher.

But there is another point here, one well worth stressing at every opportunity: Situational awareness of your own position, and your position relative to that of other aircraft in your area, can help keep us all safe. And this story also illustrates the extreme importance of speaking up when something doesn't look, feel, or sound right. There is no doubt in my mind that the Beechjet pilot's willingness to consider the overall situation, taking into account both ATC data and the data he had at his disposal in his own aircraft, and to speak up about what he saw, saved us from being closer to a disaster or, worse, experiencing one first hand.

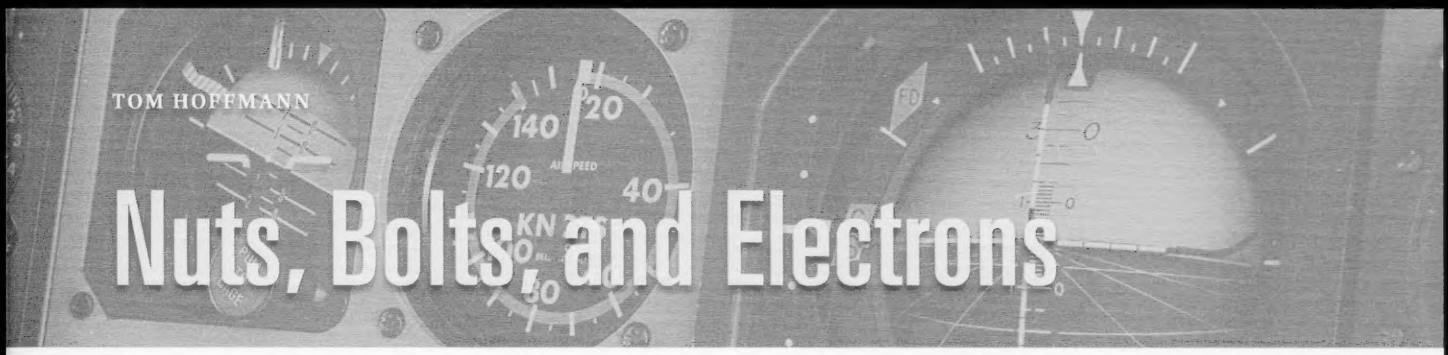
His actions make the point that situational awareness isn't just about making sure your own aircraft is safe, but also about helping to keep other aircraft safe as well. My Cherokee doesn't have TCAS. When I am in IMC, I am depending on ATC to provide separation. I am depending on myself to operate in protected areas using known procedures, IFR routes, and IFR altitudes. And I am depending on everyone else to follow the same rules. In this case, another pilot was careless enough and reckless enough to ignore those rules. His actions, which at the very least demonstrate lack of discipline and professionalism, created a hazard that could have cost lives.

Curtain Call — Applause to the Beechjet Pilot!

I can't say enough to thank the pilot of the Beechjet, who may have saved us from a horrible accident. His willingness to engage in what he saw developing shows that situational awareness on the part of all pilots in the air can help provide additional safety throughout our entire flight system. Whether you are a flight instructor, a student, or a rated pilot, I hope you will take heed of his actions and repay his professionalism by modeling it in your own instructing and flying.

Bottom line: Most aviation accidents result from a combination of factors. In many cases, they are avoidable if we all work together and make good decisions. The lesson is to always maintain situational awareness, for yourself and for others. Good decision making, good situational awareness, and a willingness to speak up to clarify potential conflicts can help avoid accidents.

Jason Blair is an active instructor, FAA Designated Pilot Examiner, and the Executive Director of the National Association of Flight Instructors. He regularly flies using general aviation aircraft for business and personal travel, typically for more than 400 hours each year.



TOM HOFFMANN

Nuts, Bolts, and Electrons

Going the Distance

AMT Distance Learning Test Takes Flight

As part of a multistep initiative to enhance Aviation Maintenance Technician training and education, the FAA has announced it will begin beta testing the integration of distance learning, or e-Learning, with initial AMT training programs. The agency has selected four U.S. maintenance schools to participate in the test, which began in July 2012 and is scheduled to run through July 2013. Students in these programs will have the ability to complete select portions of the AMT curriculum requirements (found in Title 14 Code of Federal Regulations (14 CFR) part 147) by using a computer from home or with other alternative delivery methods outside the traditional classroom environment.

Greater Access

"This represents a major step forward for the FAA to address the accessibility of AMT schools and to enhance and enrich the learning experience for AMTs," says Marty Bailey, General Aviation Branch Manager of FAA's Aircraft Maintenance Division. "The beta test will allow us to see what works well and what issues need to be corrected for this to be a successful program."

Bailey, who is also a co-chair of the project's Distance Learning (DL) Review Team, works closely with the selected schools as well as the regional FAA offices and local Flight Standards District Offices to review best practices and challenges during the test period. The AMT schools will report quarterly to the DL Review Team with specifics on the number of users, project and test scores, and feedback from both participating students and school personnel.

An analysis of this quarterly data, along with a final report provided by each school at the conclusion of the test period, will compare findings between traditional and online learning methods of the Part 147 curriculum.

Provided the analysis and feedback can validate distance learning as an effective learning method for AMT training, the FAA will consider developing guidance documentation, including an advisory circular that will address the requirements for implementing DL programs at other AMT schools.

"If the data supports the use of distance learning, our plan is to use it across the board," says Bailey. "Not having a rulemaking requirement tied to this initiative will also allow for a swifter integration of this exciting new learning method."

Among the advantages of AMT distance learning is the flexibility it offers to accommodate the needs of AMT candidates whose regular jobs may not allow them the time to commit to the classroom hours needed for an Airframe and Powerplant (A&P) certificate. A&P candidates currently must satisfy a 1,900-hour curriculum requirement as outlined in 14 CFR part 147, Appendix B. For students involved with the DL beta test, gaining credit towards those hours will require their attendance and/or participation to be identified and documented. They must also pass a final test of the covered material with a minimum score of 70 percent.

Eight core subject areas have been identified as eligible for the DL program. These include basic electricity, aircraft drawing, materials and processes (lecture only), math, maintenance forms and records, basic physics, maintenance publications, and maintenance privileges and limitations. While most of the DL content is theory- and lecture-based, there are still some areas that allow for hands-on practical application. For example, AMT students can study electricity with the use of a portable electronic test bed that can interface with a computer.

Bailey acknowledges that there are still many challenges to overcome before the program can be fully deployed, including how to effectively verify and validate active participation and how to ensure Part 147's time requirements are properly satisfied. Despite these obstacles, Bailey and the DL Review Team remain optimistic that their hard work in developing the program's initial standards, together with a carefully conducted beta test, will lay the groundwork for a successful DL program for AMTs in the near future.

Tom Hoffmann is associate editor of FAA Safety Briefing. He is a commercial pilot and holds an A&P certificate.

JEFFREY SMITH

FIRC

A New Look at a Familiar Program

Photo by Tom Hoffmann

Most instructors, as well as other pilots, are familiar with the FIRC acronym. But there are some things you may not know about FIRCs. For instance, not all FIRCs are the same, and FIRC standards have changed in the past year. For the non-instructor, a brief introduction to a topic pertinent to your favorite trainer has benefits for you as well. So, let's just see what is really is behind that FIRC acronym.

Let's start with the basic information. FIRC stands for Flight Instructor Refresher Course. The sponsors who provide these courses serve a vital function to aviation through their role in flight instructor certification. Unlike a pilot certificate, the certified flight instructor (CFI) certificate is issued with an expiration date that is typically 24 calendar months after the date of issue. If the certificate is allowed to expire, the only method of reinstatement is successful completion of another CFI practical test. While there may be some who enjoy taking checkrides, it is probably safe to say that most instructors would prefer to retain their CFI privileges without the extra visit to a designated examiner or inspector. Fortunately, a flight instructor can renew his or her CFI certificate anytime within that 24-month period. The methods of renewal are listed in 14 CFR, section 61.197 (a). As you probably guessed, one of those methods includes the completion of a FIRC.

Once the instructor has completed a FIRC, he or she can submit the course completion certificate, along with a renewal application, to the FAA. Assuming all the necessary boxes are checked, the result is the issuance of a new instructor certificate with a fresh 24-month validity period. There are even provisions for keeping the same expiration month as long as the renewal is done within three months preceding the month of expiration. So, attending the FIRC a little early can take away the fear [insert ominous music] of the dreaded reinstatement checkride without any penalty on the new expiration date.

Enough about the technical aspects of the CFI renewal. What exactly is a FIRC? Some key information appears in the title of the program's governing Advisory Circular 61-83G, Nationally Scheduled FAA-Approved, Industry Conducted Flight Instructor Refresher Course. As the title notes, these courses are intended to be utilized by instructors from any location. They are typically planned in advance, have been given FAA approval, and are conducted by the flight training community. The AC further indicates that "[the] FIRC is intended to keep flight instructors informed of the changing world of General Aviation (GA) flight training, and to enhance

aviation safety through continued refresher training of the flight instructor cadre."

As you might expect, all FIRC providers must meet certain criteria before the FAA will give its stamp of approval. These include at least 16 hours of course curriculum, testing standards, and a series of required core topics that must be covered by all providers. Despite a certain level of standardization, FIRCs are not all alike. The three main types of FIRCs you will find are in-person, online, and distance learning; each may have an aspect that appeals directly to you.

An in-person FIRC is one that is conducted live with an instructor or series of instructors and presenters. These courses are typically conducted in the classroom setting, often over a two-day weekend (although some may be spread over several weeks). The advantage to this type of FIRC is the personal interaction between the presenters and the FIRC enrollee, as well as discussions among classmates during breaks in the presentations.

An online FIRC is just that: a FIRC delivered through the ones and zeros of the internet. An appeal of the online FIRC is that the course material can be viewed at your own pace and convenience. Also, an online FIRC can be completed from any location where you have an internet connection. With today's mobile technology, that means that you can have FIRC availability just about anywhere.

Distance learning FIRCs are the third type of program offered. These courses differ from online programs in that internet is not the sole means for the material presentation. Additional methods of communication, either in the form of printed materials, CD-ROMs, or DVDs, or any combination thereof, may be presented to the enrollee. The advantages of being able to progress at your own pace are still there, and the course provider can convey course information through a variety of means.

In addition to the various types of FIRCs, you should note that some providers cater their presentations and elective topics to a particular type of operation. For example, some FIRC providers have courses geared toward rotorcraft or glider aircraft. While these courses will have information that is applicable to all airmen, those operating in these specific categories may especially benefit from the tailored discussion. Further, all FIRC providers have a certain amount of latitude in the topics they elect to present, so you may wish to check with multiple sponsors for an idea on what topics they intend to cover.

Photo by H. Dean Chamberlain

Those who have taken FIRC courses previously may notice a difference between the approved courses of today and those of the past. Many of these changes stem from the update of the aforementioned AC 61-83 from version F to version G. This latest edition, released in the fall of 2011, was the product of industry and FAA collaboration. An easy change to note is the acronym itself, moving from Flight Instructor Refresher Clinic to Flight Instructor Refresher Course. [And anyone who has been around aviation for any length of time knows that changing an acronym is never done frivolously!] This change was made to correspond to the regulations and to convey the concept that FIRCs are indeed professional learning events for those serious about aviation safety. Speaking of professionals, FIRC providers are compelled by the latest AC to interweave concepts of professionalism, ethics, decision making, and safety throughout their entire courseware.

Another notable change from the previous FIRC guidance concerns the required core topics. These subject areas, listed in Appendix A of AC 61-83G, have been designed so the attendee receives the tools necessary to operate in today's aviation environment. The information offered during the FIRCs can benefit even the most active instructor, so why not consider participating in a FIRC more frequently than the minimum required for renewal? Perhaps a different type of FIRC, or one from another provider, could generate a slightly different perspective on a certain topic. Also, the FIRC can be valuable to pilots of all certificates and skill levels. So when you sign up for your next FIRC, invite some of your students, instructor colleagues, and fellow aviators to do the same!

Now that you have the details behind the acronym, the next step is to find the FIRC that is right for you.

Jeffrey Smith is the manager of the Airmen Certification and Training Branch in the General Aviation and Commercial Division. He is also an active GA pilot and a volunteer aircrew member of the Civil Air Patrol.

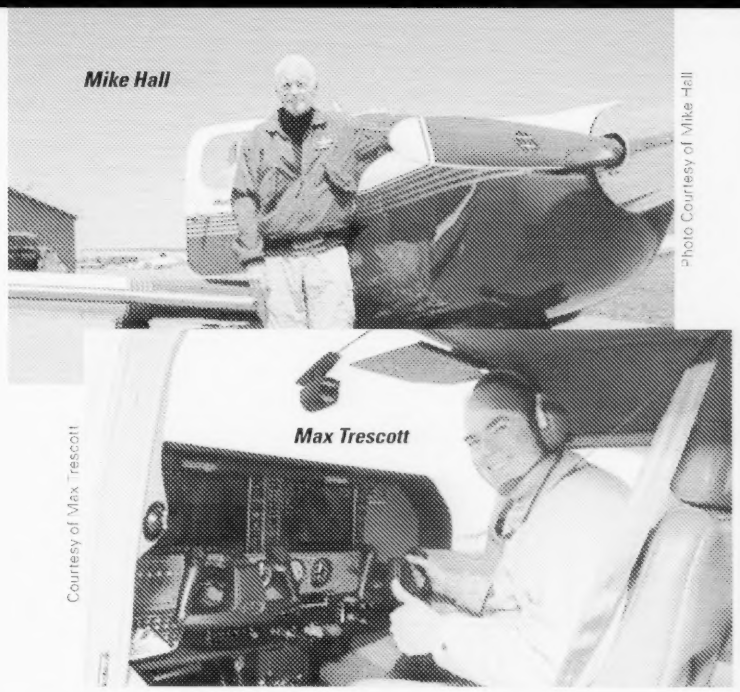
DAVID HUGHES

WAAS Happening!

Are You Up to Speed on LPV Approaches?

When Mike Hall pilots his Mooney to his home airport in upstate New York, the Wide Area Augmentation System (WAAS) capability in his avionics display allows him to see and, with appropriate ATC clearance, join the RNAV (GPS) 32 instrument approach procedure when he is still around 30 miles from touchdown. Showing his location to an accuracy around eight feet on the terrain map generated by the installed database, the precision WAAS provides is the reason why nearly 60,000 aircraft, or around 60 percent of IFR capable general aviation aircraft fleet, are now equipped with WAAS-capable avionics.

Photo Courtesy of Mike Hall



As he closes in on Runway 32 at Ithaca Tompkins Regional Airport (KITH), Hall knows that the airport is equipped with both a conventional Instrument Landing System (ILS) and a WAAS-enhanced RNAV (GPS) approach that includes Localizer Performance with Vertical Guidance (LPV) minimums. Though minimums for the LPV are almost identical to those for the ILS, he almost always requests the LPV approach. As Hall observes, the LPV approach is just as accurate at 30 miles as it is over the runway threshold. ILS, by comparison, becomes less accurate as distance from the runway increases. Moreover, while ILS guidance can waver with any disruption to the ILS signal, LPV remains rock solid.

Before the advent of LPV approaches at KITH, any ILS outage left pilots with few viable options in instrument meteorological conditions (IMC). As Hall observes, the only other approach to Runway 32 is a VOR procedure with minimums very close to those for VFR flight (2,500' ceiling). In an area plagued by winter snow and low visibility, having an out-of-service ILS meant Hall and his fellow pilots often had no luck getting into home base. Since he flies around 250 hours a year on business and personal trips, the LPV option is a very positive improvement.

Hall, a retired Air National Guard major general and F-16 fighter pilot who served in Operation Desert Storm, serves on the airport's governing body. He was an early advocate of getting LPV approaches developed and published for KITH, and notes that around 25 of the GA aircraft based at the field are now equipped to fly LPV approaches. These procedures can also benefit the two commuter carriers serving this airport once they equip their aircraft to do so.

Ithaca is not alone in enjoying the benefits of WAAS. The FAA has published more than 2,800 LPV approach procedures for use at nearly 1,400 airports since WAAS was enabled for operational use in 2003. The agency intends to publish another 2,500 procedures by 2016, which will allow every runway in the nation that qualifies for an LPV to have one.

Of these 2,800 approach procedures, over 50 percent are published at airports that lack a ground-based ILS system. In fact, some of these airports don't have any approach procedures using ground based navigation aids. That's another reason that LPV procedures are such a big hit with pilots, says Heidi Williams, vice president of Air Traffic Services and Modernization for the Aircraft Owners and Pilots Association (AOPA). "Our members embrace GPS and area navigation (RNAV), including WAAS, due to their benefits," she adds.

Another fan of LPV is Max Trescott, CFI and aviation educator/author who teaches pilots in Silicon Valley how to fly LPV approaches in their high-performance single and twin engine aircraft with glass cockpits. Trescott logs about 500 hours a year in instruction time and has written several books on today's avionics to fly LPV approaches. Trescott focuses on training pilots to properly set up the GPS avionics for an LPV approach because, as he and Hall both observe, it's just like flying an ILS after that. And just like Hall and his fellow pilots in New York, Trescott's California clients have benefited immensely from WAAS capability. For instance, Half Moon Bay Airport (KHAF), located near a Pacific Ocean beach in San Mateo County, was often inaccessible using non-precision approach procedures because cloud bases at 800 to 1,000 feet often restricted access to the airport. With the new LPV approaches, however, aircraft can easily fly into Half Moon Bay on cloudy days. Trescott also notes that LPV has made Reid-Hillview Airport (KRHV), a reliever for San Jose International Airport, more accessible.

The FAA has published more than 2,800 LPV approach procedures for use at nearly 1,400 airports since WAAS was enabled for operational use in 2003.

If you're not familiar with WAAS-enabled approaches, including those with LPV minimums, it's a great option. Try it — you'll like it!

David Hughes is a writer/editor with the FAA's Office of NextGen Performance and Outreach.

TOM HOFFMANN

A Course Set for Safety

FAA Runway Safety Initiatives Prepared for Takeoff

"North Perry Ground, Cessna 1234A is at the flight school ramp with automated weather, VFR southbound, ready to taxi to Runway 18 Left."

"Cessna 1234A, this is North Perry Ground, Runway 18 Left, taxi via taxiway Lima, Echo, hold short of Runway 36 Right."

The taxi instructions relayed to the Cessna 172 departing North Perry Airport (KHWO) in Hollywood, Fla., were read back and acknowledged by the tower precisely as issued. However, what ensued a moment later was not at all according to plan. The Cessna pilot, likely confused by the multiple runway and taxiway intersections at this location on the airport (which incidentally is one of the three runway "hot spots" identified at this airport), proceeded to cross 36R at the same time another Cessna was departing 18L on the opposite end. The departing traffic flew directly over the disoriented Cessna pilot with only about 150 feet to spare.

Despite vast improvements to the nation's overall aircraft accident rate, eye-opening events such as the one described in the above runway incursion (RI) report occur at an alarming average of three times every day. The example also shows just how easy it is for a pilot to wind up in the wrong place at the wrong time. Through the end of July 2012, preliminary data shows the total number of RIs in the United States was 895, an 11-percent increase over the same span in 2011. FAA has made runway safety a top priority, with a specific focus on developing new and more effective RI avoidance strategies.

What is a Runway Incursion?

A runway incursion (RI) is any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle, or person on the protected area of a surface designated for the landing and take off of aircraft.

Digging Into the Data

A further look at RI data shows that pilots cause approximately 65 percent of all RIs. And of those pilot-induced RIs, 75 percent are caused by general aviation pilots. Three areas in particular that lead to RIs are:

- failure to comply with ATC instructions
- lack of airport familiarity
- nonconformance with standard operating procedures

A GA pilot operating solo in a complex airport environment can easily fall victim to these causal factors. With that in mind, the FAA took a hard look at several airman guidance and training materials, as well as testing and enforcement procedures, to see where they could make improvements.

After several months of researching and analyzing runway safety data, the FAA collaborated on several new runway safety initiatives, many of which have already been implemented. Here are a few of the current efforts that have been completed or are underway:

Pilot Handbook of Aeronautical Knowledge (PHAK): A new chapter devoted entirely to runway safety and runway incursion avoidance was added to the PHAK in April 2012. It is currently listed as a separate PHAK appendix on FAA.gov, but will be added as a chapter during the next revision cycle. The new chapter has extensive coverage of taxi route planning and procedures along with several detailed photos and graphics that can help pilots properly identify airport signs, lights, and markings designed to help them maintain situational awareness. There are also several pilot/controller communication samples that highlight the correct use of phraseology, including the recent introduction of "line and up wait" instructions. Both the RI appendix and PHAK are available at www.faa.gov/library/manuals/aviation/.

Change to Practical Test Standards: Effective June 1, 2012, practical test standards (PTS) for the Private Pilot and Commercial certificates will include a required RI avoidance task. For a copy of the revised PTS, go to www.faa.gov/training_testing/testing/airmen/test_standards/. The CFI PTS has also been updated with a new RI avoidance task, but won't be in effect until Dec. 1, 2012. You can access the revised CFI PTS with the previous link.

Updates to Taxi Operations Advisory Circulars: Revisions to AC 91.73, *Part 91 and Part 135 Single-Pilot Procedures during Taxi Operations* and AC 120.74, *Parts 91, 121, 125, and 135 Flightcrew Procedures During Taxi Operations* have been approved and should be published by the end of 2012.

Photo by James Williams

Runway Safety Tip:

Consider lining up slightly to the left or right of the runway centerline (about three feet) when holding in position at night so landing aircraft can distinguish your aircraft from runway lights.

RI Remedial Training: A new revision to FAA Order 8900.1 will outline procedures for required remedial training for any pilots involved in a RI. This includes providing standardized ground training and requirements for the satisfactory demonstration of knowledge of runway safety topics. Pilots involved in certain RIs may also be required to complete an additional flight training component. The change is currently being phased in and should go into effect later this fall.

New Collaboration with Designated Pilot Examiners (DPE): With the goal of having DPEs more involved with up-to-date runway safety practices, a new collaborative effort was initiated to better facilitate information sharing among the FAA Runway Safety Regional Offices, Flight Standards District Offices, and DPEs. This can be especially effective at the local level, where experts can discuss safety issues at specific airports within a DPE's jurisdiction. One of the first steps of the effort will involve participation among the three groups during DPE initial training.

FAA has made runway safety a top priority, with a specific focus on developing new and more effective RI avoidance strategies.

Part 91 Rule Change For Taxi Clearance: With a final rule change that became effective May 14, 2012, the FAA removed some contradictory language regarding abbreviated taxi clearances. These clearances previously allowed pilots to cross all runways that intersected the taxi route to their departure runway. With the new rule, 14 CFR 91.129 (i) was changed to align with current air traffic procedures which require pilots to have explicit runway crossing clearances.

Technology: The FAA is currently evaluating a stand-alone visual warning system designed to help reduce RIs at small- to medium-sized airports. The Final Approach Runway Occupancy Signal (FAROS) system uses inductive loops embedded in the asphalt to detect an aircraft or vehicle on the runway. If either is detected, the system will indicate to pilots on final approach that the runway is occupied by immediately flashing the Precision Approach Path Indicator (PAPI) lights. FAROS has been tested extensively and found to be an effective tool in preventing RIs. Stay tuned for more information on this exciting initiative.

The FAA also leverages technology through a special runway safety page on its website (www.FAA.gov/airports/runway_safety). Here you'll find regular updates to airport hot spots, airport construction notices and diagrams, best practices, educational videos, safety quizzes, and much more.

Education is the Key

Another critical component of improving runway safety is the role of the CFI. As Doug Stewart states in his article, "So You Want to Be a CFI" on page 12, "the things we learn first are the things we retain... and also the hardest things to change." As such, the stage is set for CFIs to impress good habits upon their primary students when it comes to learning situational awareness and runway safety. Although beginner students are most impressionable, instilling good runway safety habits shouldn't be limited to just primary flight training. For CFIs, stressing the need for sound runway safety practices should be an ongoing endeavor throughout all phases of flight training — including the flight review (as required under 14 CFR section 61.56).

Often, the flight review may be a pilot's only opportunity to interact with another pilot as well as identify and correct any bad habits they've accumulated. Besides including runway safety as part of the flight review lesson plan, CFIs should also show pilots how and where to access educational tools like those listed in this article.

The FAA stands committed to improving the current safety culture and will continue to collaborate with aviation stakeholders to explore ideas that promote safe practices.

Tom Hoffmann is the managing editor of FAA Safety Briefing. *He is a commercial pilot and holds an A&P certificate.*

Learn More

FAA Runway Safety Website
http://www.faa.gov/airports/runway_safety/

"How a Runway Earns Its Stripes" – FAA Safety Briefing Nov/Dec 2011, p. 12
www.faa.gov/news/safety_briefing/2011/media/NovDec2011.pdf

JAMES WILLIAMS

Angle of Attack

What to Do with a Flight Review?

As all pilots know, one of the basic requirements to exercise the privileges of your certificate is to satisfy the flight review requirement outlined in 14 CFR 61.56. Although the regulation provides for several means of meeting this requirement, most pilots think of the flight review as a session with a flight instructor involving at least one hour of ground review and one hour of flight time.

But what do you do with those two hours of time? The conduct of what a flight review should be is the subject of much debate and speculation from both those giving, and those receiving the review. The goal is to ensure that flying knowledge and skills remain at a level appropriate to the certificate and to the kind of flying an individual pilot typically does. The regulations give the aviation instructor a lot of discretion with respect to what happens on a flight review. The same principle applies to the Instrument Proficiency Check (IPC) required under 14 CFR section 61.57.

To Review Before the Review

To provide additional (but optional) guidance, several years ago the FAA published a web-only document on *Conducting an Effective Flight Review*. Developed in collaboration with members of the government/industry General Aviation Joint Steering Committee, this document provides optional guidance and suggestions on how the instructor should approach and administer the flight review.

Instructors and pilots now have an additional resource — a long-awaited update to Advisory Circular 61-98, *Currency Requirements and Guidance for the Flight Review and Instrument Proficiency Check*. Available on the FAA website (*see link below*), AC 61-98B incorporates material from *Conducting an Effective Flight Review* as well as material from the optional *Instrument Proficiency Check* guidance published on the FAA website as a companion document to *Conducting an Effective Flight Review*.

As revised, AC 61-98B refocuses on its primary goal. "We wanted to provide a more usable and realistic document," says Joseph Morra, an Aviation Safety Inspector who worked on the revision. "The process was time consuming because AC 61-98A was about 20 years old and there were a lot of new things to consider and incorporate.

"One thing we tried to stress is that flight reviews should be conducted in the aircraft that best represents the kind of flying you do most, or the most challenging aircraft you regularly fly." Morra says. While the regulations allow you to receive a flight review in any aircraft in which you are rated, the AC emphasizes the importance of representative experience. "If your regular ride is a Beechcraft *Baron*, a flight review in a Cessna 152 would cover you as far as the regulations are concerned, but is that really a good check of your abilities as they will normally be used?" Morra asks.

In addition, AC 61-98B discusses the conduct of the review and the importance of setting out expectations before beginning. The CFI should ask questions to determine what level of review will be needed and what areas of operation should be covered. For instance, the CFI should ask what type of flying the pilot normally does, and ascertain the level of recent experience. These questions also help determine whether the CFI is qualified to conduct the review. If you, as the CFI, have no experience in the pilot's aircraft type, safety and professionalism require you to consider whether you are the right person to conduct the review. Another important part of setting expectations is to discuss time needed for an adequate review. Although the regulations set minimum times, a pilot who has been away from flying for several years will probably need more than one hour of ground review and one hour of flight time to meet the intent of the flight review.

If you are planning to either give or receive a flight review, be sure to take a look at AC 61-98B. And remember that the flight review is not just a box-checking exercise, but an opportunity to learn and improve your flying skills.

James Williams is FAA Safety Briefing*'s assistant editor and photo editor. He is also a pilot and ground instructor.*

MATT RIGSBY

Vertically Speaking

Baby, It's Cold Outside!

Cold Weather Precautions for Rotorcraft

After an unusually cold and snowy December night in north Texas, the day pilot reported to the medical crew that the snow and ice would have to melt from the main rotor blades and tail before they could respond to emergency calls. Though the snowy weather had cleared, the frigid temperatures remained.

Around noon, a flight request came into the hospital. The pilot, and, shortly thereafter, the medical crew, performed walk-around checks before they boarded and started the engines. Snow and ice were reportedly no longer on the blades or the aircraft's tail.

The aircraft had climbed about 50 feet above the helipad when two warning horns sounded. The nose yawed to the left. The pilot lowered the collective and attempted to return to the helipad as safely as possible. The aircraft still hit the pad hard enough to spread the skids and bounce. The pilot and medical crew survived the accident, but sustained significant lower back injuries.

No matter how cold or wet the weather, nothing beats a careful and detailed pre-flight inspection

Winter Precautions

Flying can be dangerous when ice and snow accumulate in or near the airframe engine inlet, whether the rotorcraft is on the ground or in the air. By taking some simple precautions, pilots can reduce the risk of an in-flight engine shutdown.

Snow and ice can build up in the engine intakes and plenums when the rotorcraft is on the ground, and when the engine or engines are off or operating at low power. When a pilot increases engine power, such as during takeoff, the accumulated snow and ice can separate from the airframe inlet surface. The engine can ingest this icy debris, resulting in decreased power or engine failure. Some of the older turbo shaft engines with axial inlets are particularly susceptible to loss of power from ice and snow ingestion.

Remember that most helicopters are not approved for flight-into-known-icing (FIKI) conditions. Pilots can expect icing when flying in visible moisture, such as fog, rain, or clouds, when the temperature falls below 5°C [41°F]. Pilots encountering such conditions should immediately seek warmer locations or altitudes. Note that *warmer* altitudes may not always be *lower* altitudes.

To further reduce risk, the FAA urges pilots to take the following steps when snow and ice conditions exist:

- Review the Aircraft Flight Manual carefully, with special attention to Limitations and Operations guidance for snow and ice.
- Use basic airmanship. Preflight by evaluating current and predicted weather obtained from Flight Service and supplemented by self-briefings. Recommended web sites include: Icing tool: http://weather.aero/icing, and the Helicopter Emergency Medical Services (HEMS) flight tool: http://weather.aero/hems.
- Install inlet and exhaust covers when the aircraft is on the ground and engines are shut down.
- Before starting engines, remove the inlet/exhaust covers and perform a complete inlet/exhaust inspection, using a flashlight. The inspection should include surfaces inside the inlet, the cowl area forward, around the inlet, and the area behind the particle separator or screen, if installed. *Remove all accumulated snow or ice.*
- ***CAUTION: DO NOT*** remove ice or snow by chipping or scraping! Use heated air or deicing fluid as appropriate, in accordance with the manufacturer's procedures. In freezing temperatures, pay particular attention to sheet ice on the bottom and forward of the inlet. This ice can also form behind particle separators. Engine preheating may be required.
- Review the article "The Icing Factor" in the Helicopter Operations section of Transport Canada's *Aviation Safety Letter* (Issue 4/2007) available at: http://www.tc.gc.ca/civilaviation/publications/tp185/4-07/winter-operations.htm#heli-ops

continued on page 30

SUSAN PARSON

Checklist

Architecture for Improvement

Politely stated, many people think there is room for improvement in the FAA's knowledge test questions and associated guidance documents (e.g., *Airplane Flying Handbook*). The FAA agrees. That's why the agency decided to seek expert advice on shaping the content, process, methodology, and priorities for these critical materials to enhance GA safety.

To that end, in September 2011 the FAA assembled a group comprised of more than a dozen people whose names and/or organizations you would recognize as "the" experts in the GA education, training, and test preparation fields. Officially chartered as an "ARC," or Aviation Rulemaking Committee, that can recommend both regulatory and non-regulatory changes, the group met for the first time in early October 2011. The Airman Testing Standards and Training ARC submitted its report and recommendations — essentially, a blueprint for building better knowledge tests — to the agency in April 2012. The FAA has made this document available on its website (www.faa.gov/aircraft/draft_docs/arc/), but here's a summary of its key proposals.

Content – Airman Certification Standard

Though not listed first (it is actually Recommendation 3), the core concept is the ARC's recommendation for the FAA to transition to a single "Airman Certification Standards" (ACS) document for each certificate and rating. Under this approach, the aeronautical knowledge topics enumerated in 14 CFR part 61 will be clearly aligned with, and integrated into, the appropriate Areas of Operation in the existing Practical Test Standards (PTS). The ARC also recommended adding task-tailored sections on risk management to each Area of Operation.

This approach has several benefits. First, it will help the FAA identify and eliminate "irrelevant" questions, because it will provide the framework needed to clearly align and map specific areas of aeronautical knowledge and risk management to the stick-and-rudder skills needed for safe operation in today's National Airspace System (NAS). Second, it will offer one-stop-shopping guidance to students, instructors, DPEs, and training providers on what the FAA expects in terms of knowledge, skills, and attitudes. Third, the new ACS, once developed, will help the FAA align and streamline guidance material and develop targeted test questions.

Process – Stakeholder Body

The ARC's first recommendation offers the means to bring the ACS to life with a view to real-world training, testing, and operation. Specifically, the ARC recommended that the FAA establish a stakeholder body consisting of subject matter experts from industry and relevant FAA policy offices to develop and review the ACS, undertake the review and development of handbook content, and assist with the developing and "boarding" (review) of knowledge test questions. In a related point (Recommendation 6), the ARC also recommended that the FAA revise its internal processes to ensure that all relevant FAA policy offices participate meaningfully in the development and review of airman testing standards and training materials.

The core concept is the ARC's recommendation for the FAA to transition to a single "Airman Certification Standards" (ACS) document for each certificate and rating.

Methodology – Question Development and Review

Given that the ARC arose from concerns about the quality and relevance of FAA knowledge test questions, its members devoted considerable time to discussing options and ideas for improvement. Although development of the ACS (*see above*) offers the principal means to a stable and long-term resolution to existing concerns, two of the ARC's recommendations (4 and 5) address members' views on test question development — that is, what kinds of questions the FAA should seek to develop. Though recognizing that some knowledge areas require rote memorization, the ARC urged the FAA to incorporate scenario-based questions wherever appropriate and, in all cases, to ensure that questions are: pertinent to safe operations, necessary for sound

airmanship, and relevant to the way pilots operate in the real world.

As you may have seen in press reports on the ARC's work, ARC members also recommended that the FAA return the knowledge test item data bank to the public domain. Though the FAA concurs with the spirit and intent of this recommendation, which is to use a test development process open enough to benefit from expert input and review, the ARC report also recognizes the FAA's obligation to safeguard both the real and perceived integrity of its testing process. The FAA is exploring a range of options for meeting both objectives.

Priorities – What's Up First?

Recognizing that the FAA must set priorities, the ARC recommended that the stakeholder body focus initially on developing the ACS and associated guidance and testing materials for three "foundational" certificates and ratings: private pilot certificate, flight instructor certificate, and instrument rating.

Stay tuned as the FAA and stakeholders work to advance from blueprint to building.

Susan Parson (susan.parson@faa.gov, or @avi8rix for Twitter fans) is editor of FAA Safety Briefing. *She is an active general aviation pilot and flight instructor.*

Vertically Speaking continued from page 28

Back to the north Texas accident; video surveillance footage for the 24 hours before the flight showed that the helicopter had been parked outside for about five hours in blowing snow. No plugs or covers were installed over engine inlets or the exhaust. The plugs and covers were later installed, but the helicopter remained outside in temperatures ranging from 16° F to 34° F for the next 19 hours. The video also revealed that at no time did anybody look at the exhaust stack or the right side engine intake, or open any access panels before operating the helicopter. The National Transportation Safety Board determined the probable cause of this accident was the pilot's inadequate preflight inspection and the momentary loss of engine power due to snow or ice ingestion.

If you need to keep the rotorcraft on the ground for extended periods, such as waiting for clear weather, shut down the engine or engines and install covers. No matter how cold or wet the weather, nothing beats a careful and detailed pre-flight inspection, paying special attention to engine inlet areas and aerodynamic surfaces. You'll be glad you did, and so will your passengers.

Matt Rigsby is a Transportation Industry Officer and Accident Investigator in the FAA Rotorcraft Directorate. He is an A&P, as well as a fixed and rotary wing pilot, who has worked in the helicopter community for 20 years. He has participated in more than 90 helicopter field accident investigations, both domestically and internationally.

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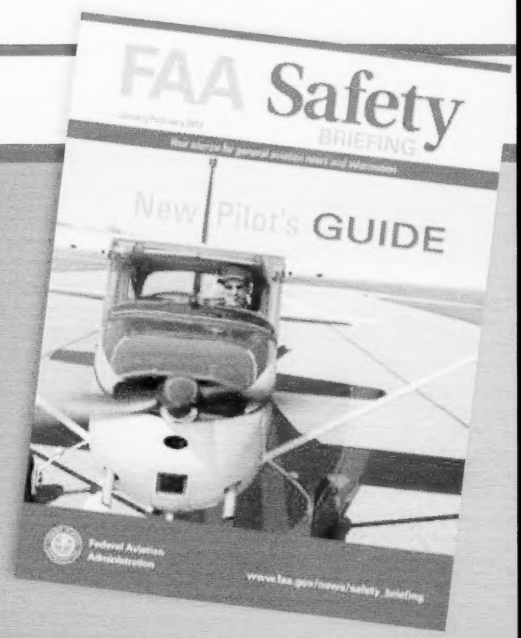


Flight Forum

Weather Code

Are you serious?! With high pilot workloads and safety being such an important factor, why code the weather and make it even harder for the low-time, inexperienced pilot to understand, and possibly make a deadly mistake in deciphering? It's fast? It took me 16.3 seconds (I timed it) to read the uncoded version you presented. It took 10.0 seconds for the coded version. That's a savings of 6.3 whole seconds. Now that's worth a person's life?

Why is it you can't take six seconds more to read a couple additional words, for a correct and unquestionable interpretation of the weather?

- Anonymous

I enjoyed your article in the May/June 2012 FAA Safety Briefing about Weather Code and it is so true. However, I am one of those individuals that learned the "old" symbol code (pre-ICAO) as a student pilot 30,100 hours ago and still use it. To me, ceiling and visibility come first and winds — maybe somewhere down the line after temp and dew. Somehow it creeps into my script when I copy down the weather during a pre-flight briefing or when I'm recording the weather observation in the log on board my boat. It just works.

Code is indeed cool and so are your articles.

- Mike Oswald

Thanks to both of you for writing and sharing your opinion. The point in choosing that topic was simply to share opinions and personal preferences. As noted at the end, the great thing is that we now have plenty of choices with respect to the format for receipt of weather information. It's certainly not a universal point, as evidenced by the diversity of opinions on either side of the weather code debate.

Night Vision Goggles

Is flying a helicopter that is not modified for night vision goggles, while using NVGs, against [the regulations]?

- Via the internet

The short answer is yes. There are requirements for both the pilot and the aircraft to use Night Vision Goggles (NVGs). If you are interested in using NVGs please contact your local Flight Standards District Office. Using NVGs is not something to be taken lightly and doing so without proper training and certification is both against the regulations and unsafe.

Mountain Flying

After 58 years in the field rescuing and picking up bodies out here in the Cascades, I would like to add a sentence or two to Susan Parson's story. Do not (like NEVER) fly directly at a high mountain or ridge from the downwind side. There have been several airplanes stuck on the side of our high mountains out here. The pilot thought he would fly over the top from the downwind side. Little airplanes like we fly just do not have enough power to climb through the downdraft.

In addition to the rotor winds Susan mentioned, sometimes just the downdraft from the wind going over the top of the mountain is more than the aircraft can fly through. Little brother found that even a Panther jet photo recon aircraft almost couldn't climb over Fuji one time when he had to take pictures with a forward firing camera of a C-47 impacted on the downwind side of Fuji. He just barely cleared the top at full power and the plane needed serious repairs from the turbulence when he got back to base. Take that 45 degree approach seriously!

- Lynn Buchanan

Thanks very much for taking the time to write about the mountain flying article, and especially for the additional thoughts.

FAA Safety Briefing *welcomes comments. We may edit letters for style and/or length. If we have more than one letter on a topic, we will select a representative letter to publish. Because of publishing schedule, responses may not appear for several issues. While we do not print anonymous letters, we will withhold names or send personal replies upon request. If you have a concern with an immediate FAA operational issue, contact your local Flight Standards District Office or air traffic facility. Send letters to: Editor, FAA Safety Briefing, AFS-805, 800 Independence Avenue, SW, Washington, DC 20591, or e-mail SafetyBriefing@faa.gov.*

Let us hear from you — comments, suggestions, and questions: e-mail SafetyBriefing@faa.gov or use a smartphone QR reader to go "VFR-direct" to our mailbox.

SUSAN PARSON

Postflight

Lights, Camera, ACTION!

Not long after I started working as a flight instructor, I began using a debriefing technique that eventually evolved into the "4-R collaborative critique" approach I've outlined in several articles and contributed to the current edition of the FAA's *Aviation Instructor's Handbook*: **R**eplay, **R**econstruct, **R**eflect, and **R**edirect. Since an important part of my role as a flight instructor is to help trainees calibrate and refine their perceptions into accurate judgments about their flights, it just made sense to start not by reading *my* laundry list, but rather by having the trainee verbally *replay* the flight while I listened, compare the trainee's conclusions to my own observations, and guide him or her through a structured self-evaluation represented by the remaining "Rs."

There are several clear benefits to this approach. First, the trainee quickly develops the habit of paying attention. Second, it allows the instructor to accurately gauge the development of the trainee's judgment and situational awareness. It provides incredibly useful insights on why a fledgling flyer might have done something that was otherwise completely baffling. Third, letting pilots start by critiquing themselves makes them a lot less defensive — and a lot more receptive — when it is my turn to talk. Many find that my evaluation is a lot more generous than their own.

For the Record ...

Having grown up at a time when cassette tapes were common rather than quaint, I originally framed the first "R" as "replay the tape." Though I never expected pilots to literally record and replay their flights, today's technology offers a wide range of ways to do just that. YouTube is replete with pilots' self-made digital flight records, and I know several pilots who regularly fly with a camera.

These days there are dozens of inexpensive recording devices, some specifically intended for aviation. In fact, one of my bosses uses such technology to record not just his own flights, but also the instructional flights he makes with his student pilot son. I hope I am not spilling secrets by disclosing that the proud father/instructor often spices up our Monday morning staff meetings by replaying his son's latest aeronautical achievements.

And, as I recently discovered, there's also an app for that. A (free) app called CloudAhoy allows you to use the internal GPS in your iPhone or iPad to record a flight, which you can later replay over Google Earth on your iPhone, tablet, or desktop. The app currently offers both a more analytical "picket" view and a gee-whiz cockpit view, which allows you to literally replay the flight as it unfolded. I was instantly enthralled by the instructional possibilities that CloudAhoy and other such apps offer. For most pilots, and especially for those who have grown up in the digital age, an app-based debriefing is likely to be a lot more fun, a lot more interesting, a lot more accurate, and a lot less threatening than the more traditional postflight critique.

To my fellow technophiles, I offer two caveats. First, please be mindful that not everyone loves to have a starring role in his or her own Movie of Mistakes. Gauge the level of interest and, more important, acceptance before you add this technological element to your postflight debriefing. If the trainee is not comfortable with actual video replays, please don't push the point. The potential value of the tool is lost if fidgeting discomfort ruins the trainee's ability to focus on the flight debrief. In that case, stick to the verbal replay technique.

Second is the hazard that arises anytime two technophiles team up in the airplane. As with any aviation technology, there is danger if flight recording is allowed to drive activities or worse, distract from flight operations and safety. It can also be detrimental if it is allowed to dominate the learning process. Used as a supporting tool, though, adding visual replay capability can be an invaluable tool to accelerate development of critical insights. And for added fun, it adds new meaning to the memory aid many pilots use for the final pre-departure check:

Lights — Camera — ACTION!

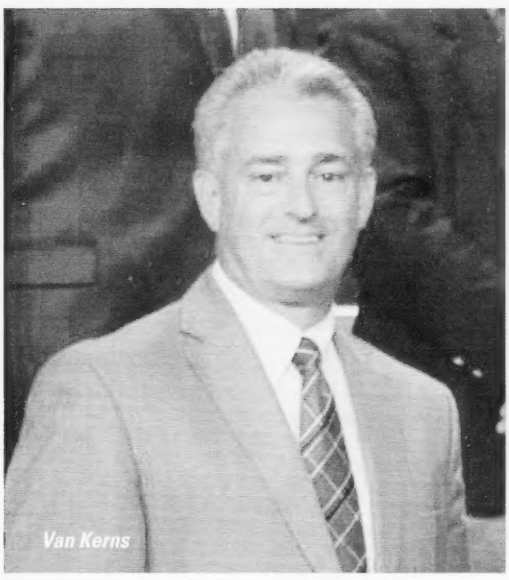
Susan Parson (susan.parson@faa.gov, or @avi8rix for Twitter fans) is editor of FAA Safety Briefing. She is an active general aviation pilot and flight instructor.

TOM HOFFMANN

FAA Faces

Van Kerns *FAA Regulatory Support Division Manager*

NTSB Photo



Van Kerns

"A teacher affects eternity; he can never tell where his influence stops." Although this quote from American journalist and historian Henry Adams predates the era of modern flying, it is remarkably fitting for today's aviation educators. And it particularly resonates for Van Kerns, manager of the FAA Flight Standards Service's Regulatory Support Division in Oklahoma City.

"The overwhelming majority of accidents trace to some form of pilot error," says Kerns. "The more a pilot is prepared, the better his/her chances are of having an enjoyable, successful, and safe flying experience. That process starts with sound flight instruction."

As the Regulatory Support Division manager, Kerns has responsibility for several areas that impact general aviation and the role of the flight instructor. One of the most obvious is through airman standards and testing activities. In partnership with other FAA divisions, the Regulatory Support Division manages the practical test standards (PTS) used by examiners for all categories and classes of airman certification. Many of these standards, including the PTS for flight instructor certification, have been recently updated. The division also develops, manages, and administers the knowledge exams required for airman certification, and it oversees designated pilot examiner (DPE) policy.

The Regulatory Support Division also impacts airman training through its development and management of FAA knowledge handbooks. These tools (available at www.faa.gov/library/manuals/aviation/) include the *Pilot's Handbook of Aeronautical Knowledge* and the *Aviation Instructor's Handbook*, both vital resources in an aviation educator's instructional toolbox.

The more a pilot is prepared, the better his/her chances are of having an enjoyable, successful, and safe flying experience.

Remaining up to date with the changes and challenges of the GA and flight instructor community is a top priority for Kerns and his team, as shown by their sponsorship of the recent Airman Testing Standards and Training Aviation Rulemaking Committee (ARC). "The ARC provided an exciting opportunity to get very specific feedback from the aviation community, and the group made a number of recommendations to improve FAA testing," says Kerns.

One of the recommendations was to establish a standing stakeholder body from industry to provide input to key processes and products such as airman testing standards, handbooks, and knowledge tests. According to Kerns, this will provide a much needed mechanism for ongoing communication between the GA community and the FAA. As such, it will ensure the highest quality products with the most up-to-date content.

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"I am really excited about the direction we are moving with recommendations from the ARC," says Kerns. "We believe this collaborative approach will have a major positive impact on general aviation."

For more information on the FAA's Regulatory Support Division, visit www.faa.gov/about/office_org/headquarters_offices/avs/offices/afs/afs600/. And check out this issue's Checklist department on page 29 for more on the Airman Testing Standards and Training ARC.

Tom Hoffmann is the managing editor of FAA Safety Briefing. He is a commercial pilot and holds an A&P certificate.

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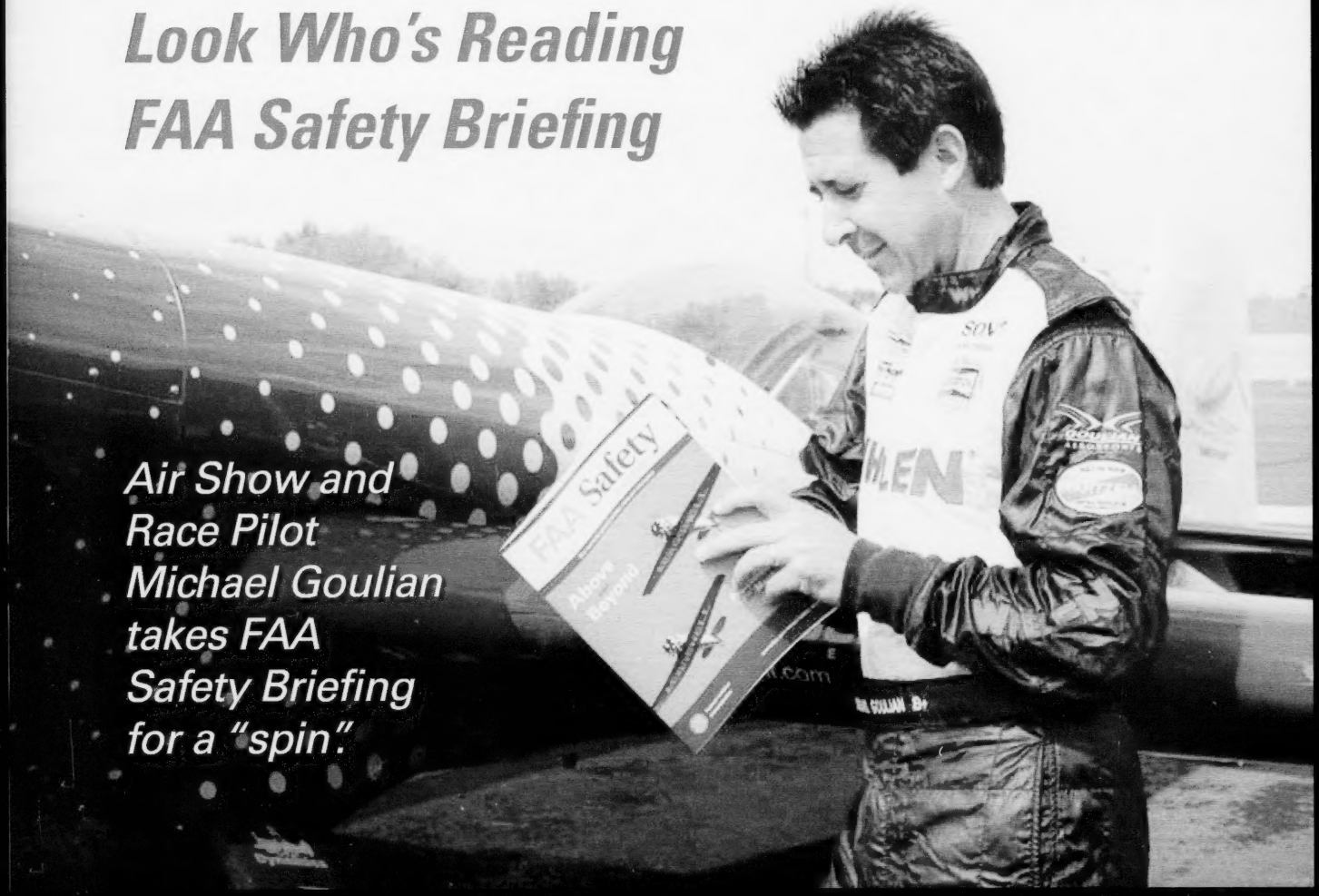

Air Show and Race Pilot Michael Goulian takes FAA Safety Briefing for a "spin".